

THE JOURNAL OF MEDICAL EDUCATION

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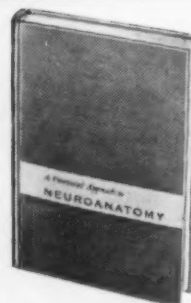
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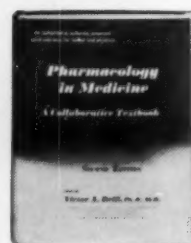
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News from the Medical Schools: Material for this section should be transmitted to the News Editor, Miss Neva Resek, 2530 Ridge Avenue, Evanston, Illinois. Announcements of major faculty and administrative appointments, news of distinguished visitors and significant educational developments will be included. It is not possible to publish notices on grants-in-aid for scientific research.

Items of Current Interest: Audio-visual news and notices from national and federal agencies appear in this section.

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ATLAS OF TECHNIQUES IN SURGERY

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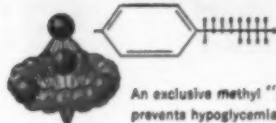
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PUERTO RICO MEDICAL ASSOCIATION, Santurce, Nov. 15-19. Mr. Jesus A. Sanchez, P.O. Box 9111, Santurce 29, P.R., Executive Secretary.

DECEMBER

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY, Palmer House, Chicago, Dec. 3-8. Dr. Robert R. Kierland, First National Bank Bldg., Rochester, Minn., Secretary-Treasurer.

AMERICAN RHEUMATISM ASSOCIATION, Sheraton Dallas Hotel, Dallas, Texas, Dec. 9. Mr. Gerard W. Speyer, 10 Columbus Circle, New York 19, Executive Secretary.

CONFERENCE ON GRADUATE MEDICAL EDUCATION—"EDUCATIONAL PROBLEMS IN THE INTERSHIP AND RESIDENCY," University of Pennsylvania Graduate School of Medicine, Dec. 1-2. For information write Dr. Paul Nemir Jr., 237 Medical Laboratories Bldg., Philadelphia 4, Dean.

RADIOLOGICAL SOCIETY OF NORTH AMERICA, Netherland Hilton Hotel, Cincinnati, Dec. 4-9. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N.Y., Secretary.

1961

JANUARY

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Hotel Americana, Bal Harbour, Miami Beach, Fla., Jan. 8-13. Mr. John K. Hart, 116 S. Michigan Ave., Chicago 3, Executive Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETING, Hotel Dinkler-Tutwiler, Birmingham, Ala., Jan. 16-18. Dr. William E. Adams, Am. Coll. of Surgeons, 40 E. Erie St., Chicago 11, Secretary.

FEBRUARY

AMERICAN ACADEMY OF ALLERGY, Statler-Hilton Hotel, Washington, D.C., Feb. 6-8. Mr. James O. Kelley, 756 N. Milwaukee St., Milwaukee 2, Wis., Executive Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, Feb. 23-25. Dr. W. J. R. Camp, 1853 W. Polk St., Chicago 12, Secretary-Treasurer.

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AMERICAN COLLEGE OF RADIOLOGY, Drake Hotel, Chicago, Feb. 8-11. William C. Stronach, LL.B., 20 N. Wacker Drive, Chicago 6, Executive Director.

Congress on Medical Education and Licensure, Palmer House, Chicago, Feb. 4-7. For information write Mrs. Ann Tipner, A. M. A., 535 N. Dearborn, Chicago 10.

SOCIETY OF UNIVERSITY SURGEONS, University of Kansas Medical School, Kansas City, Kan., Feb. 9-11. Dr. Ben Eiseman, 4200 E. Ninth Ave., Denver 20, Secretary.

MARCH

AMERICAN ASSOCIATION OF ANATOMISTS, Palmer House, Chicago, Mar. 28-31. Dr. Louis B. Flexner, Dept. of Anat., School of Med., Univ. of Pa., Philadelphia 4, Secretary-Treasurer.

AMERICAN COLLEGE OF ALLERGISTS, Statler Hilton, Dallas, Tex., Mar. 12-17. Dr. Howard G. Rapaport, 16 E. 79th St., New York City, Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETINGS FOR SURGEONS AND GRADUATE NURSES, Hotels Bellevue-Stratford, Ben Franklin, and Sylvania, Philadelphia, March 6-9. Dr. William E. Adams, 40 E. Erie St., Chicago 11, Secretary.

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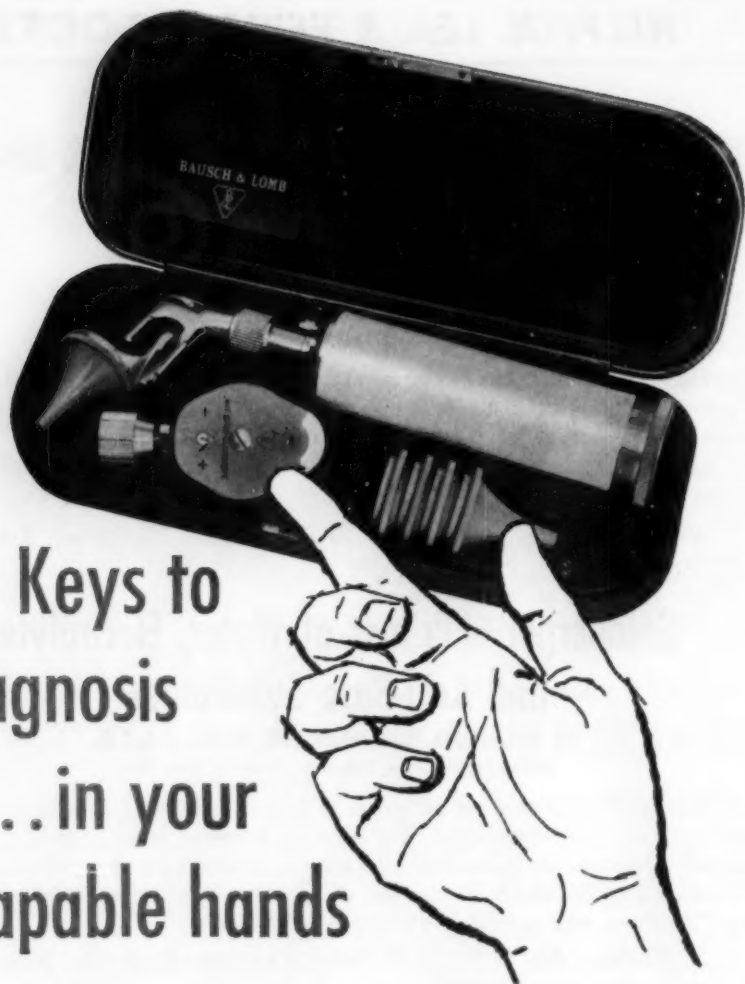
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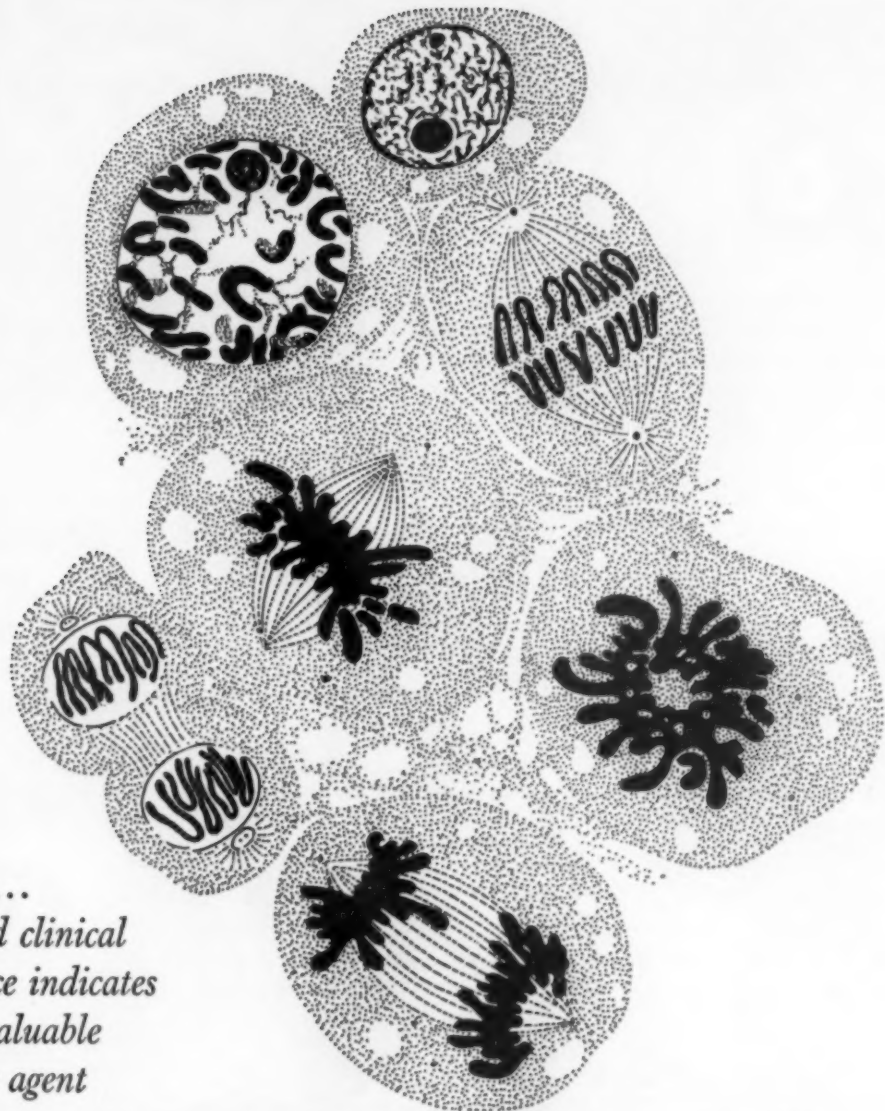
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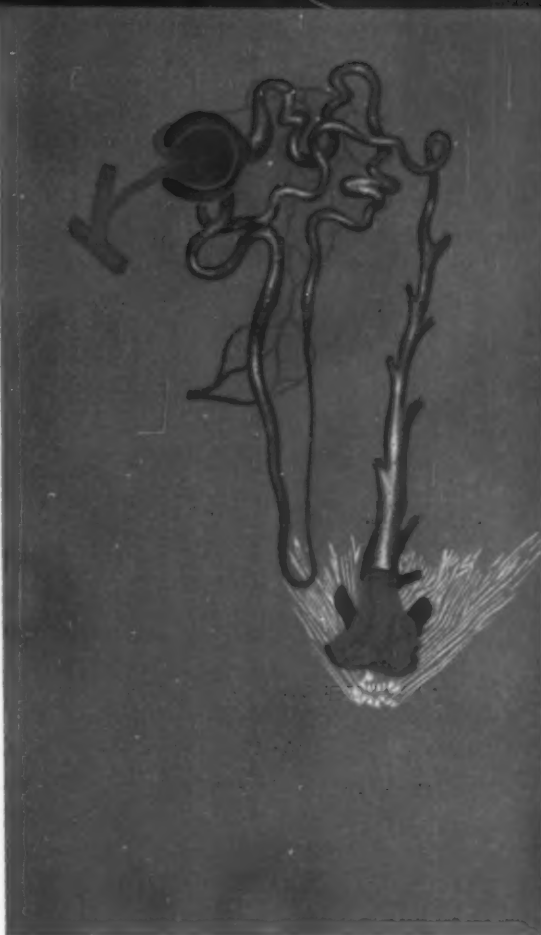
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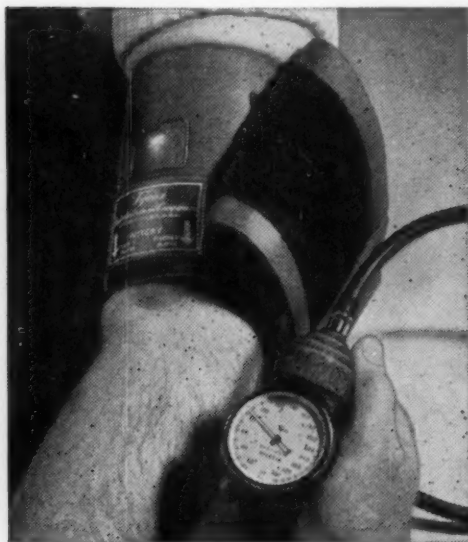
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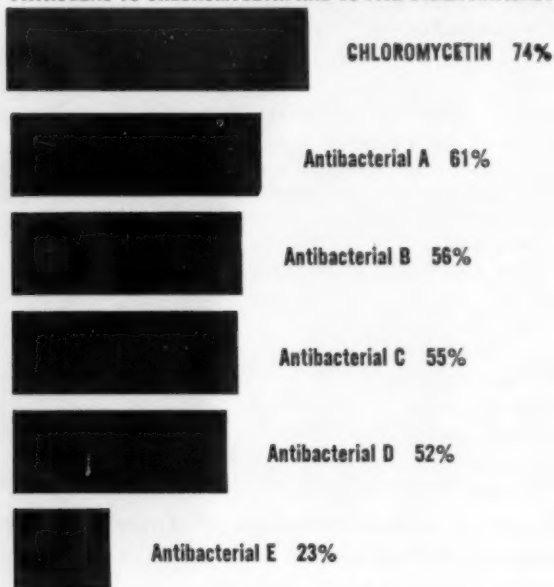
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Variation in College Grading Standards and Performance in Medical School

JOSEPH K. HILL, Ph.D.,* AND ARLENE HECK, B.A.†

State University of New York, Brooklyn, N.Y.

Data involving the academic performance of approximately 1000 medical students were presented in a paper entitled "Assessment of Intellectual Promise for Medical School" in October, 1959 (2). Certain relationships in variability between undergraduate averages and Medical College Admission Test scores were examined in the light of subsequent academic performance in medical school. Two general relationships seemed worth further examination.

First, 54 per cent of students with satisfactory college averages (B or better) but with MCAT science and quantitative subscores below 500, were in academic difficulty by the end of the first year of medical school. This suggests that in selection a poor MCAT score cannot always be overlooked in favor of a satisfactory undergraduate average.

Second, a sampling of four colleges placed this figure variously at 73 per cent in one case, 0 per cent in another, 50 per cent in a third, and 28 per cent in a fourth case. This variation suggests that whether or not a poor MCAT score is overlooked in favor of a satisfactory college average should depend on the college and its standard of grading. It was reasoned that, since the MCAT is a standardized objective test, and since in general students with high college averages also do well on the MCAT, the variation

noted above must be due to differing grading standards among the undergraduate colleges—that, in fact, a student with an "A" record from one college really compared with a "B" or "C" student from another college, depending on the grading policies of the two colleges.

The studies being reported here were made in order to elucidate the variability of college grading standards and how it relates to medical college performance.

The undergraduate sources from which 1040 students came to the Downstate Medical Center over a period of 7 years (1950–56, inclusive) were studied. As would be expected, it was found that a fair percentage of the students came from a relatively small number of colleges. This small group of colleges is the typical source of most of the good applicants and consequently a source with which the medical college gains considerable experience.

The remainder of the students are generally drawn in very small numbers from a relatively large group of colleges with which the medical college has had comparatively little experience. At the Downstate Medical Center this distribution may be somewhat exaggerated because of the location and nature of the institution, but it is probable that Table 1 represents a more or less typical picture for most medical schools. It can be seen that 63 per cent of the students came from 12 per cent of the colleges. For con-

* Executive Assistant to the President, Downstate Medical Center.

† Administrative Assistant, Downstate Medical Center.

venience, this group in the study is designated "Group A."

The remaining 37 per cent of the students came from a miscellany of 72 colleges. During the 7-year period, typically, three or fewer students came from each of these in any one year. This group of 72 colleges is called "Group B."

Coefficients of correlation between unadjusted undergraduate averages and first-year medical school averages were calculated. These are shown in Table 2. A correlation of .351 for "Group A" has low predictive value, but a correlation of .135 as in the case of "Group B" has negligible predictive value.

It is an accepted fact that grades attained in lower schools relate to those attained in higher schools. This relationship is demonstrated in a gross way for medical school in the paper cited above (2). Following the

TABLE 1

DISTRIBUTION OF "SUPPLIER" COLLEGES BY
NUMBER OF STUDENTS ADMITTED IN
A 7-YEAR PERIOD

STUDENTS ADMITTED IN A 7-YEAR PERIOD	COLLEGES		STUDENTS	
	No.	%	No.	%
20 or more	10	12	655	63
Less than 20	72	88	385	37
Total	82		1040	

ideas of Burnham (1), the present study attempts to ascertain whether more effective selection could be obtained by better defining the standard of undergraduate averages from various colleges.

Scattergrams of representative samples of "Group A" colleges are shown in Chart 1. Note that the coefficient of correlation for College "X" is relatively high, and 98 per cent of the cases fall within 3 grade groupings ($\pm 3S$) of the center diagonal axis. College "Y" shows greater variation, and more cases fall on the high-college-average-low-medical-school-average side of the center line. It may be assumed that these students are being marked relatively easier than students from College "X" in comparison to the medical school standard of performance.

With College "Z," A and B averages are virtually meaningless in relation to medical school performance. Since student groups from each of the "Group A" colleges represent a good sampling (N ranges from 20 to 143) over a period of 7 years, it is felt that with reasonable safety, the grading scale for each college can be adjusted downward more or less in relation to performance in medical school, so that a student from any one college could be compared with a student from any other and this would be a reasonably reliable comparison. Chart 1 also illustrates the range of 1, 2, and 3 "degrees" of adjustment. Note that with these adjustments 97-100 per cent of students fall within three grade groupings of the center diagonal line.

TABLE 2

UNDERGRADUATE RECORD FROM BASELINE
YEARS COMPARED WITH FIRST YEAR
MEDICAL SCHOOL RECORD

Coefficients of Correlation for Group A
and Group B Schools

7-Year baseline group undergraduate average	Group A		Group B	
	r	N	r	N
Unadjusted	.351	655	.135	385
Adjusted	.441	655	.398	385

By making appropriate individual adjustments in the grading standards of one-third of a letter grade for two colleges, two-thirds for six, and three-thirds for two, of the ten colleges in "Group A" (see Table 3), the coefficient of correlation for the 655 students as a whole is improved to +.441, a correlation with substantial predictive value.

Adjusting the grading scale of an individual college does not change the coefficient of correlation for that college. Adjusted averages from College "Z" still have a coefficient of correlation of low predictability.

Based on the above, one might make some fairly accurate guesses in relation to predicted performance in a given medical school. The following three actual students may be taken as representative examples (Table 4).

Other desirable attributes being equal, all three of the above applicants might well be admitted, and on the surface be considered

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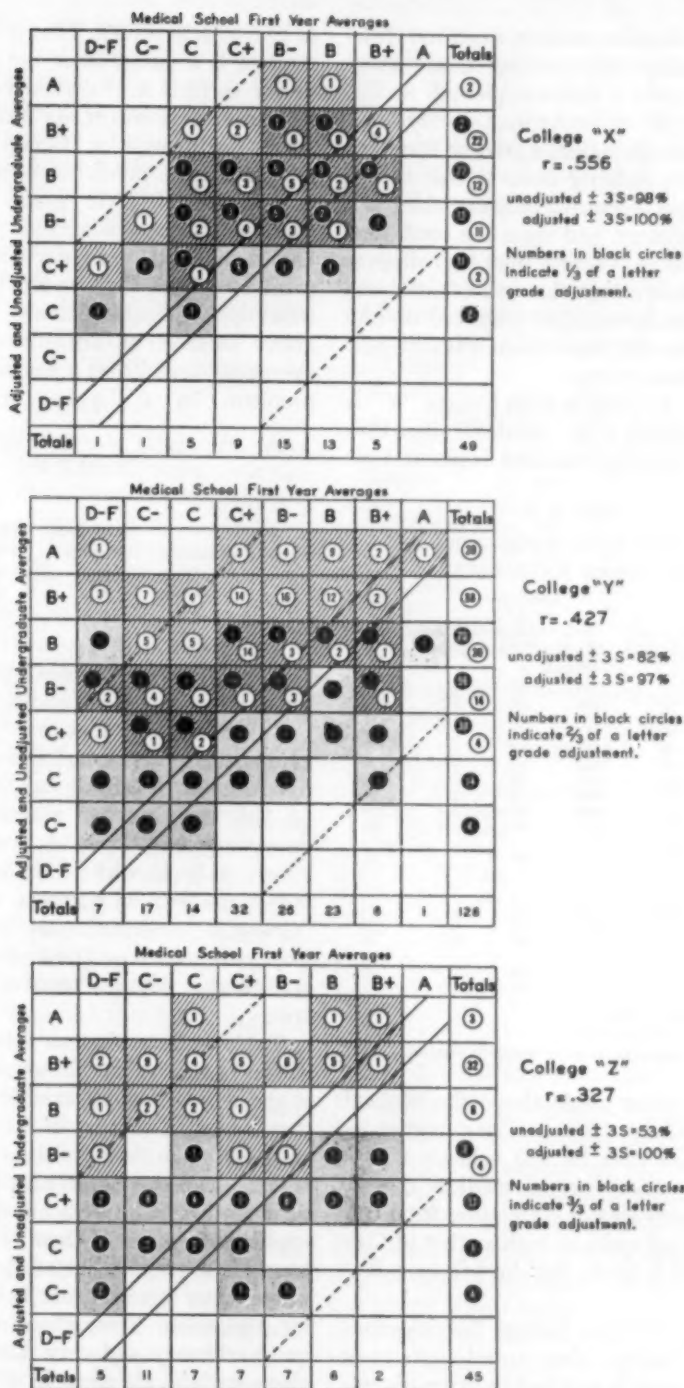


CHART 1.—Comparison of distributions of medical school first-year averages according to unadjusted and adjusted undergraduate averages.

of roughly the same academic caliber. However, adjusting their undergraduate averages shows quite a different picture.

Student "E" is probably a pretty good student, since his college's grading standard (see Table 3) is fairly close to that of the medical school, requiring only one-third of a grade adjustment, and since the coefficient of correlation of averages from his college is high enough (+.556) to have substantial predictive value. It would be predicted that he will most probably have about a B first-year medical school average.

Student "F" coming from College "Y" is probably roughly a B- student, since College "Y's" grading standard is about two-

of the medical school. That he will be a C+ student is a guess, since the predictability of the coefficient of correlation for College "Z" is low. However, as indicated above, with adjustment, r for "Group A" as a whole has substantial predictive reliability.

The second main group of students (Group B)—those who come in small numbers from a wide variety of colleges where a great length of time would be required to build up sufficient experience to permit the above method of adjustment of college averages—constitutes a somewhat different problem. In a 7-year period N's for

TABLE 3
ADJUSTMENT TABLE FOR GROUP A
AND GROUP B COLLEGES

College	N	r	Unadjusted UGA* % within $\pm 3S$ †	Degree‡ of adj.	Adjusted UGA % within $\pm 3S$
Group A					
X	49	.556	98	1/3	100
A	33	.244	87	2/3	100
B	61	.270	85	1/3	91
C	70	.234	84	2/3	99
Y	126	.427	82	2/3	97
Z	45	.327	83	3/3	100
D	143	.379	83	2/3	98
E	83	.278	78	2/3	95
F	20	.636	90	2/3	100
G	25	.455	60	3/3	100
Sub-Total	655		81		97
Group B					
H	108	.219	92	1/3	96
I	171	.377	69	3/3	98
J	106	.242	48	4/3	98
Sub-Total	385		69		98
Total	1040		77		97

* Undergraduate average.

† In thirds of a letter grade.

‡ ± 3 Grade groupings from the center diagonal axis.

thirds of a letter grade above the medical college standard. However, one cannot be quite as sure that he will achieve a B—standing in first year of medical school, since the coefficient of correlation from college "Y" is not quite as high as that of College "X." It is likely that he will be a B—student.

Student "G" from College "Z" is probably a C+ student, since an adjustment of one whole grade is required to bring his college's grading standard into line with that

TABLE 4

Student	College	Unadjusted Average	Adjusted Average	Actual Medical College Average
E	X	B+	B	B
F	Y	B+	B-	C+
G	Z	B+	C+	C-

"Group B" colleges ranged from 1 to 18 with the average between 5 and 6.

Table 2 shows that unadjusted undergraduate averages from "Group B" colleges correlate far less well in the first place (+.135) with medical school performance than those of "Group A," where more is known to begin with of the relative standards of grading. As a group, students from "Group B" colleges appear to be for the most part graded on the average one whole grade higher than the medical school standard.

Table 3 shows that only 69 per cent are within plus or minus three grade groupings of the center diagonal axis. It could be said that, since the colleges in "Group B" grade on the average three-thirds of a letter grade higher than the observed performance of their graduates in medical school, the next applicant from one of these 72 colleges could have his average adjusted downward by a whole letter grade before being considered for admission. This, of course, would be quite arbitrary and very likely unfair to a given individual, since in relation to this medical school, no grading standard base-

line exists for each of the 72 individual colleges in "Group B." Nevertheless, on the average, one might identify a fairly large number of applicants with weak potential by such a method. The alternative is to divide the colleges in "Group B" into categories according to how well their students' grades match that of the medical school. It was possible to identify three distinct groups shown in Table 3 as "H," "I," and "J." By the same method of adjustment as with "Group A," it may be seen that college category "J," for example, requires $1\frac{1}{2}$ letter grade adjustment to bring the undergradu-

TABLE 5

UNDERGRADUATE RECORD COMPARED WITH
FIRST-YEAR MEDICAL SCHOOL RECORD
CLASS OF 1957—DOWNSTATE MEDICAL
CENTER

Coefficients of Correlation for Group A
and Group B Schools

The class of 1957 undergraduate average	Group A		Group B		Total	
	r	N	r	N	r	N
Unadjusted	.313	80	.425	70	.368	150
Adjusted	.387	80	.482	70	.478	150

ate grading scale within range of the medical school scale. A student with a college average of B+ from a category "J" college would on the average be predicted to be a C student. The reliability of such predictions, although low, is considerably improved after "Group B" is adjusted according to categories (see Table 2).

In order to test the schema, the degrees of adjustment listed in Table 3 were applied to the individual college averages of the class of 1957 according to the college or college category from which the students came. A correlation coefficient of +.478 was obtained, enough of an improvement to raise it to the level of substantial predictive value (see Table 5). Prior to adjustment, 61 per cent showed the high-college-average-low-medical-school-average relationship (see Table 6). After adjustment this figure was reduced to 24 per cent, a difference of 37 per cent. The high-high relationship lost only 9 per cent. Note that a statistically significant

relationship could not be shown prior to adjustment. A per cent distribution of adjusted grade point averages shows the following (Table 7).

Unadjusted, the median college average is B+, while the predicted median shown in the adjustment is C+. The medical school median average is C.

TABLE 6

HIGH-LOW* RELATIONSHIP BETWEEN ADJUSTED
AND UNADJUSTED UNDERGRADUATE AVER-
AGES AND PERFORMANCE IN MEDICAL
SCHOOL

Class of 1957 Downstate Medical Center					
Medical college first-year average					
College av.	Low		High		
	No.	%	No.	%	
High:					
Unadjusted	92	61.3	45	30	
Adjusted	36	24	32	21	
Low:					
Unadjusted	12	8	1	.6	
Adjusted	68	45	14	9	
Unadjusted $X^2 = 3.41$ $P = .10-.05$					
Adjusted $X^2 = 15.29$ $P < .001$					
N = 150					

* The high-low division is between B- and C+ on both axes.

TABLE 7

	COLLEGE AVERAGE		MEDICAL SCHOOL AVERAGE, 1ST YEAR
	Unadjusted (%) ₁	Adjusted (%)	
A	8	0	3
B+	43	1	4
B	11	8	4
B-	7	37	20
C+	2	21	14
C	0	17	24
C-	0	9	11
D	0	5	11
F	0	3	9

SUMMARY AND CONCLUSIONS

A schema is advanced for improving the definition of undergraduate averages and reducing the variability of college grading standards when considering applicants to a particular medical school. This is done by studying past performance in medical school of graduates of individual colleges or college categories. When tested on a medical school class not in the baseline sample, the schema seems to have promise of better identifying, beforehand, students who are apt to be weak

in their first-year performance. Although an adjusted average might be used as a factor in denying an applicant admission, it would certainly be inadvisable to rule out a college or group of colleges as a potential source of successful students just because its grading standards are unlike those of other schools. This is particularly true if trends noted by Moore (3) toward a general decline in the quality of the applicant group continue. It will be better to have a more realistic appraisal of intellectual promise, recognize the deficiencies, and set out to correct them.

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Continuance in Medical School as Related to ACE Scores

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INTRODUCTION

At the same time that there is reason to be concerned about the ability of medical schools to attract sufficient applicants in the coming years, owing in part to increasing competition from other disciplines, there is also reason to be concerned about the quality of students who are accepted (3). In a recent report published by the U.S. Department of Health, Education, and Welfare, there are data indicating that "the quality of medical students is not as high now as it was a few years ago" (5, p. 15). This report indicates that since 1955 the drop-out rate due to academic failure or withdrawal with poor academic standing has increased continuously so that by 1958 it was almost twice that in 1955. Other reports also indicate clearly that the percentage of medical students with premedical grades of A has decreased noticeably since 1950 (6). While the number of first-year medical students with C averages in their undergraduate work has not fluctuated very much, the percentage of very able students, i.e., those with grade average of A, has decreased from 40 per cent in 1950 to 16 per cent in 1955. Clearly, many of the superior students who previously might have entered medical school are pursuing some other career. Such a change is bound to have some impact on the matter of medical school failure as well as related problems.

* Instructor in Medical Psychology.

† Professor of Medical Psychology.

THE PRESENT STUDY

The present study is a report of a program of psychological testing of freshman medical students at the University of Nebraska College of Medicine during the past 9 years. The tests were given after the students were admitted to medical school and were not part of the initial selection procedures. Essentially, we have tried out various tests in a preliminary fashion to see if we could discern possible relationships of test performance to failure or withdrawal from medical school. While we have been interested in nonintellectual factors as well as intellectual ones, the present report is concerned with an analysis of a test of the latter type, the American Council on Education Psychological Examination. This test, which will be referred to in this report as the ACE, has been designed "to appraise what has been called scholastic aptitude or general intelligence, with special reference to the requirements of most college curricula" (2, p. 2). It is divided into two parts: the Linguistic Tests, which consist of three separate parts, and the Quantitative Tests, which also consist of three parts. The Linguistic Tests are presumed to give some index of abilities in the language and verbal skills area, and together give an L score. The Quantitative Tests are considered to give some index of the abilities involved in quantitative thinking; these tests give a Q score. In addition, there is a Total Score, which is the sum of scores on the Linguistic and Quantitative parts. Various validation

studies of the test have yielded correlations of about .50 with academic grades in college (1, p. 186). The ACE test is considered here in relation to the problem of withdrawal from medical school.

SUBJECTS

The subjects were all students at the University of Nebraska College of Medicine for whom ACE scores were available. This test had been administered to the entering freshman classes of 1951, 1952, 1953, 1954, 1956, and 1958. Not every student enrolled at the School of Medicine had taken the ACE, since some were transfers, during their medical training, from other schools and were not given the test either at the time of admission to their original school or at the

withdrew for reasons of academic failure. The only other category in which there is any substantial frequency is that of "emotional or family problems." As can be seen in Table 1, the mean scores show some variation from group to group. The students who transferred to other medical schools, for example, had distinctly higher scores than those who failed.

To evaluate these scores further, the mean ACE scores for each of the freshman classes were computed (see Table 2) and

TABLE 1

ACE SCORES AND REASON FOR WITHDRAWAL

REASON FOR WITHDRAWAL	N	MEAN ACE SCORES		
		Total	L	Q
Failure	16	107.31	68.38	38.94
Emotional and family problems and/or poor standing	9	130.37	87.23	43.14
Lack of interest	2	124.50	89.00	35.50
Disciplinary	1	96.00	51.00	45.00
Transfer to another medical school	3	152.00	94.33	57.66
Transfer to another school, non-medical	2	126.50	83.50	43.00
Military service	1	138.00	82.00	56.00
Deceased	1	111.00	76.00	35.00
Total	35			

time of their transfer here. In addition, an occasional student, whose initial enrollment was at the University of Nebraska College of Medicine, failed for one reason or another to take the ACE. These students constitute only a small percentage of the total class, and it appears doubtful that failure to include them in the analysis affects the results in any significant way.

RESULTS

Mean scores on ACE.—From the start of classes in 1951 to the start of classes in 1959, a total of 38 students withdrew from the six classes listed above. Of these 38, ACE scores were available for all but three, or a total of 35 students. In Table 1 are listed the mean scores for these students, grouped in terms of the various reasons for withdrawal. As can be seen in Table 1, sixteen of the 35 students, or slightly less than one-half,

TABLE 2
MEAN SCORES, ACE, FOR SIX CLASSES

Entering class	N	Total	L	Q
1951	82	129.64	80.51	49.13
1952	80	133.08	81.84	51.24
1953	84	134.49	84.43	50.06
1954	86	132.18	83.28	48.90
1956	83	127.80	81.39	46.41
1958	76	123.87	79.05	44.82
All classes combined	491	130.34	81.87	48.47

compared with the mean scores of some of the groups of withdrawers. Since the "failure" group is the largest, comparisons were made first between the mean for this group and the mean for all classes combined, utilizing the "*t*" method. These comparisons are given in Table 3. As can be noted there, the mean scores for this group are significantly below the mean of all the classes combined. This holds for Q, L, and Total scores. Since the means for each class vary somewhat, individual comparisons were made for each set of scores between the mean of the failure group and the means for each class. Of these eighteen comparisons, all but one were significant at the .01 level of confidence, and the remaining one was significant at the .05 level.¹ This group of students, therefore, is below the mean of any class as far as academic aptitude scores are concerned.

¹ It should be pointed out that the 1954 edition of the ACE was used with the last three classes studied here, but an earlier edition was given to the first three classes. The scores obtained with the different editions are not completely comparable. The 1954 edition tends to produce somewhat lower scores than the previous editions, particularly at the upper end of the range. Although the scores utilized

In addition to the "failure" group, there is one other comparatively moderate sized group, i.e., those who withdrew for emotional or family problems, with or without poor academic standing. It seemed reasonable to consider that these students might have dropped out because their aptitude, as measured by the ACE, might have been lower than average, and that they could not tolerate the added stress of the problems they had.

TABLE 3

COMPARISON OF MEAN SCORES OF FAILURE GROUP AND MEANS OF ALL CLASSES ON ACE

Score	df.	" <i>t</i> "*	<i>P</i>
Total	505	4.87	< .01
L	505	5.07	< .01
Q	505	4.05	< .01

* As the number of students withdrawing either for reasons of failure or for emotional problems was rather small, i.e., 16 and 9, respectively, it appeared highly unlikely that the assumption of equal variances could be met when comparing each of these groups to the total classes. An estimate was thus made of the variance common to the two populations involved for any comparison, as reported in both this table and also in later tables. Use was made of a formula suggested in McNemar (4, p. 110). To compute "*t*," this estimate, s^2 , was then used in the formula:

$$"t" = \frac{M_1 - M_2}{\sqrt{\frac{s^2}{N_1} + \frac{s^2}{N_2}}}$$

A comparison of the mean L and Q scores of this group to that of the mean L and Q scores of all the classes combined failed to yield significant differences. One of the students in this group, however, seemed markedly atypical. This was a female student who, quite different from most students, failed in her senior year. In addition to this, her scores, i.e., 100 on the L scale and 64 on the Q scale, were much superior to the rest of those in this group and, in fact, quite high

in the present study are the actual score obtained, we have made separate analyses in terms of the different editions as a check on this problem. These analyses provide essentially the same pattern of results as the combined analyses. Consequently, the differences between these editions do not influence the comparisons made in the study.

for her class as a whole. She had apparently been able to weather several years of medical school in spite of a history suggesting much turmoil in her immediate home life. If this student is excluded from the analysis, some findings occur which do seem suggestive. The mean L and Q scores for this group drop from 87.23 and 43.14 (as reported in Table 1) to 85.63 and 40.53, respectively. This group, when now compared to the mean of all the classes, has a significantly lower mean Q psychological score (see Table 4). This holds, in addition, for four of the six

TABLE 4

COMPARISON OF MEAN SCORES OF GROUP WITH EMOTIONAL PROBLEMS AND MEANS OF ALL CLASSES ON ACE

Score	df.	" <i>t</i> "	<i>P</i>
L	498	1.53	NS
Q	498	1.71	NS
L*	497	1.02	NS
Q*	497	2.42	< .05

* With atypical student omitted.

classes when this group is compared with each of them separately. On the L scale, however, no significant differences are detected. This group, therefore, differs from the total group of classes only in terms of the Q score and not on the L score. In contrast to the "failure" group, they have an average performance level on Linguistic Tests.

Analysis of individual scores.—The data presented thus far have pertained to the comparisons of groups utilizing mean scores. They have indicated that the clear-cut "failure" group has been below average on both Linguistic and Quantitative Tests, whereas the group of withdrawers with personal or family problems was inferior only on the Quantitative Tests. In order to explore the matter more in terms of individual performance and prediction, the distribution of scores in each of the groups was analyzed.

It is apparent that the two main withdrawal groups differ most from the class averages on the Q score. When a median score is computed for all of the classes combined and used as a point of comparison, some rather interesting findings are secured. In the "failure" group, only two individuals

secured scores above the median, while fourteen had Q scores below the median. For the group with emotional problems, six of the students had Q scores below the median, and only two had scores above the median. While the L score was almost as diagnostic for the "failure" students, it had little selective value for students with "emotional" problems.

On the basis of this analysis, therefore, it appears that the median scores on the ACE have some discriminating value with regard to who continues in medical school. Scores above the median are very infrequently associated with withdrawal due to academic failure. While scores below the median do not necessarily denote failure in medical school, it is primarily from the group with such scores that the bulk of academic failures come. In particular, low Q scores bear a relationship to withdrawal from medical school, not only for the academic failures, but for those who withdraw for personality reasons. Twenty out of the total number of 24 students in these two groups, constituting the majority of withdrawals, secured Q scores below the median. One can only speculate at this point on the reasons for this finding. In the "failure" group, there is an over-all below average academic aptitude, which is perhaps heightened on the Q scale. In the other group, however, the individuals have average or above average linguistic abilities. Whether the discrepancy between L and Q scores is a reflection of personality disturbance or whether it is a sign of below average quantitative abilities insufficient for medical school is impossible to say. It may be that this group is vocationally misplaced in terms of aptitude and would do better in areas where verbal skills are stressed. In any event, the Quantitative scores appear particularly significant in relation to the problem of withdrawal from medical school. We are pursuing this problem further with analyses of additional test data.

SUMMARY

A comparison was made between the ACE scores of six recent classes at the Uni-

versity of Nebraska School of Medicine and the scores of students who withdrew from school for one of two reasons: (a) academic failure or (b) "emotional or family problems." The mean scores of the "failure" group were found to be significantly lower than the mean scores for the students in all classes combined. This holds true for the L, Q, and Total Scale Scores. Students withdrawing for reasons of "emotional" problems seem to demonstrate a different pattern. The indications are that their L scores do not differ from the over-all mean, whereas their Q scores do seem significantly lower than average. It is suggested that this particular pattern may possibly reflect personal maladjustment or indicate vocational misplacement. A further breakdown of the Q scores indicates that, if the median score is used as a point of comparison, withdrawal for reasons of either failure or emotional problems is seldom associated with scores above the median. A marked majority of students withdrawing for either of these two reasons have Q scores below the median of their classes. The Q scale, therefore, seems related to potential withdrawal from school and merits further investigation.

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Changing Educational Methods in a Department of Human Anatomy

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HISTORICAL INTRODUCTION

Less than half a century ago, the anatomy departments of many medical schools in Britain and elsewhere were regarded as places in which a medical student learned by apprenticeship those dissecting skills and, by rote, those topographical facts necessary before he could properly gain insight into the rationale of surgical procedures. A good anatomist was one who could answer from memory any relevant question a student cared to pose, and even surgeons expected a speedy reply to their specialized queries. At that time anatomical journals did not record the wealth of experimental material which

they do now but, for the most part, contained topographical and developmental descriptions and reports of anomalies explained in the light of the growing knowledge of embryology.

After World War I, the emphasis of the teaching in this department moved toward a "comparative" approach and later toward a "functional" approach (Evans [4]). Since 1945, more changes have gradually become possible in the curriculum. Anatomy is now studied as far as possible from a dynamic biological point of view, and considerable reduction in topographical detail has been achieved. The time saved in this latter direction has been largely counterbalanced by a widening in the field of interest implicit in the new mode of approach. For example, the minutiae of systematic detail necessary for the practice of a variety of medical and surgical specialties are now thought to be best reserved for clinical postgraduates, while the preclinical student nowadays learns much more about growth processes, age changes, genetics, and other aspects of anatomy which can be conveniently grouped together under the heading of "Human Biology."

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‡ The Faculty of Medicine of the University of London consists of twelve "undergraduate" medical schools and a Postgraduate Medical Federation. Eight of the undergraduate medical schools possess departments of basic medical sciences, and the Postgraduate Medical Federation includes an Institute of Basic Medical Sciences situated at the Royal College of Surgeons. In addition there are basic medical science departments in two of the Multifaculty Colleges of the University of London (i.e., King's College and University College).

Prior to admission to University College medical students have completed a "pre-medical" education in physics, chemistry, and biology at a "public," "grammar," or "technical" school. While at University College they are taught Anatomy, Physiology, Biochemistry, and Pharmacology in a course lasting 18 months. The majority then proceed to University College Hospital Medical School for clinical training lasting 3 years, followed by a year of compulsory internship. Selected individuals may defer clinical studies to take a B.Sc. (Honors) degree course in Anatomy or Physiology (15 months extra) and later may take the M.Sc. (1 year) or the Ph.D. (2 years) degree also.

POLICY

In a formulation of departmental teaching policy, the educational recommendations of the General Medical Council of the United Kingdom, the academic requirements of the University of London syllabus and its interpretation by visiting examiners, and the suggestions of interested colleagues and students must all be taken into account. Most of these parties are agreed that students can

now be relieved of the great bulk of anatomical detail which was taught to their predecessors, but opinions vary as to what precisely can be deleted. Loyalty to personal research interests tends to suggest to individuals that unnecessary detail occurs only in unrelated fields of endeavor, and anatomists commonly experience difficulty in persuading faculty colleagues that details of other subjects are likely to prove just as binding to the majority of students as are those of regional anatomy.

The most recent recommendations of the General Medical Council (3) sanction greater diversity of curricular emphasis, and it is to be hoped that this heralds in a new era of experimentation in the teaching of anatomy in British departments (Thomson [6]). It would appear that dissection of the whole body is no longer obligatory, though it is still recommended.

Insofar as the University of London syllabus still includes dissection of the whole body, coverage of all its regions is still maintained. By judicious selection of material, students are given a balanced picture of both the structure and the working of the body which would not be possible in the allotted time if much topographical detail was also required. Naturally the teaching program of any department is colored to a greater or lesser degree by the experience and research programs of the staff concerned. At University College current interests are quantitative neurohistology, tissue culture, wound repair, and electron microscopy. Comparative anatomy, histochemistry, and medical history have not recently received the attention formerly accorded to them, and anthropology is studied in a separate department.

The main object of education is to teach students how to seek out information for themselves and how to integrate it meaningfully with what they have already learned from other sources. This requires a considerable mental effort on the part of the student, and, although teachers can help in this process it is obvious that, in the last analysis, the onus for effective integration must inevitably fall upon the student himself. This habit

of mind, once developed, will pay dividends both before and after qualification, and the interdepartmental medical time-table is designed to encourage this self-discipline.

Thorax is studied in the first term when the Physiology Department finds it convenient to consider circulation and respiration. Histology, in the first and second terms, forms an important link between the anatomical and physiological aspects of human biology. Head and neck are dissected in the second term, thus giving the student a knowledge of the cranial nerves, special senses, and intracranial topography before being introduced to neuroanatomy and neurophysiology in the third and fourth terms. Dissection of the abdomen in the third term is accompanied by lectures on some relevant aspects of organogeny and malformations. The embryology course is completed in the fourth term.

Students often experience difficulty with junctional zones between the trunk and the limbs. By arranging for them to dissect from the thorax into the upper limb (term 1) and from the pelvis into the lower limb (term 4), these regions become much more comprehensible as nerves and vessels are followed in continuity from their origins to their distributions.

It is recognized that students will be introduced to a body of knowledge the assimilation of which demands the comprehension of a new technical vocabulary and a disciplined habit of observation. The majority of students will need these acquisitions throughout their professional careers, and for this reason the vocational aspect of the course has not been diluted, but no longer is the study of anatomy to be the Herculean feat of memory of yesteryear. Although most British medical students become family practitioners, the content of the course is not designed solely with this in mind. Every opportunity is taken to stimulate students' interest in the scientific basis of medicine and to encourage eventual academic or specialist practice. Some indication of the success of this policy is given by the high proportion of University College preclinical stu-

dents (over 50 per cent, personal communication from the Sub-Dean) who subsequently acquire honors' degrees in basic Medical Science subjects or postgraduate qualifications in a variety of clinical specialties.

A serious attempt has been made to improve the educational value of the teaching by introducing a number of elective activities such as departmental research seminars, group discussions, and exercises in elementary biometry (Quilliam and Aitken [5]). Among staff and students alike, the view is encouraged that the course is as much of an academic adventure as it is a vocational training. A variety of incentives to learning are presented to the student—the traditional "pass" or "fail" assessment seldom being employed.

The value of flexibility in teaching is also recognized, since it is only too easy for teachers in this field to revert to dogmatic and stereotyped ways of imparting what has been regarded in the past as the "canon" of anatomical knowledge. Advantage is taken of the diversity of background and interest in staff and students alike to maintain a dynamic and experimental approach to teaching methods. Obviously, some students (and some teachers too) find the didactic approach of the lecture theater most to their liking, while others learn and give of their best in the informal atmosphere of a laboratory or dissection room demonstration or tutorial.

The few systematic lectures emphasize general rather than specific morphology, and their focus is on the functional, embryological, and clinical significance of the region. Thus, in the study of the limbs, the movement of the whole arm or leg is considered first and then analyzed in terms of the individual joints involved. Whether or not an individual lecturer uses blackboard drawings, lantern slides, or films, and in what combination and proportion are matters for personal discretion. Public address or television equipment is seldom used. Freehand drawings and diagrams are those which students might be expected to reproduce at examinations, while lantern slides are used

for identification, orientation, detail, color contrasts, and x-ray appearances. Films find their place when techniques or dynamic processes are being studied. In the future, if dissecting time is further reduced, films showing how to dissect and where to find important structures may prove invaluable. Attendance at lectures is not compulsory, and this privilege is seldom abused. Individuals who habitually absent themselves from practical work are interviewed.

Although medical students predominate numerically within the department (see below), there is a substantial annual intake of dental students. From time to time an outstanding dental student, having passed the preclinical dental examination, may be accepted into the preclinical medical course (an extra year) before proceeding either to a B.Sc. (Honors) degree or to study for a double clinical qualification in dentistry and in medicine, with the object of eventually undertaking research and specialist work in the dental field. To make the most economical use of demonstrators' time, both medical and dental students frequently use the dissecting room together.

Ancillary courses in elementary and advanced embryology and histology are given for students taking a B.Sc. (Honors) degree in zoology or physiology. A number of paramedical or medical auxiliary students (nurses, physiotherapists, chiropodists, speech therapists, etc.) use the facilities of the department but are taught by extramural staff. A course in anatomy for artists is given to students of the Slade School of Fine Art which is attached to the College. No course for clinical postgraduates preparing for the Primary Examination for the Fellowship of the Royal College of Surgeons (one of the examinations leading to specialist practice) is organized by the department nowadays, but dissecting room facilities are available to aspirants working on their own.

The academic year (session) starts in October and consists of three terms, each of 10 weeks. The medical course occupies five terms (18 months), the dental course three terms (9 months), and the B.Sc. (Honors)

course an extra four terms (15 months). Only in the latter are there time-table commitments during the long summer vacation, i.e., July, August, and September. There are about 65 students in each "Junior" and "Senior" medical class, 25-30 in the dental class and up to ten in the Honors class. The total weekly faculty teaching time for medical students totals 30 hours and for dental, 26 hours. The Honors students work on a tutorial system, undertaking a varying laboratory schedule but having few lectures.

In their second or "senior" year, medical students take a College sessional examination at the beginning of term 4 (October) and the preclinical University examination (2nd M.B., B.S.) toward the end of term 5 (i.e., in the following March). Formal teaching occupies only 6 weeks of this last term, the remainder being set aside for revision, private study, and the examination. Students who fail this examination can resit it 3 months later. Dental students also have a College sessional examination before their preclinical University examination (2nd B.D.S.) in June. Students failing on this occasion can resit the examination in the following December. Selected medical students can defer clinical studies to join the B.Sc. (Honors) degree course in the April following the successful completion of the preclinical course. This Honors course ends in the June of the following year with a University examination.

About half the total preclinical teaching time for both medical and dental students is spent in the anatomy department. Histology is taught in anatomy time though, for historical reasons, it forms part of physiology in the University examination. Detailed analysis of the Faculty time-tables for 1958/59, 1948/49, and 1938/39 shows that the total teaching time for the preclinical medical course has been reduced from 1,600 hours to about 1,300 hours. In 1938/39, anatomy occupied about 1,000 hours, but it now occupies only 680 hours. There is now no teaching on Wednesday afternoons or on Saturdays, and all students have some other free time with no formal commitments dur-

ing time-table hours on other days (see Quilliam and Aitken [5]).

LECTURES

The professor (departmental chairman) gives a lecture course entitled "Introduction to the Study of Man." During the first term this bridges the gap between premedical biology and preclinical human anatomy. In the second term a variety of related topics, e.g., growth, regeneration, aging, and genetics are discussed in general terms within the framework of Human Biology. The number of lectures on topographical anatomy is small, and the bulk of the actual teaching is done in the dissecting room. Other lectures cover histology, neurology, and embryology. On a faculty basis, short introductory courses are arranged in statistics, genetics, and psychology.

Dental students attend the course "Introduction to the Study of Man," and, when they are working on the same regions as the medicals, they go to the same gross anatomy lectures. Otherwise, they have their own course of lectures which stresses those features of special importance to their future career.

DISSECTING ROOM ROUTINE

A reader or a lecturer (i.e., equivalent to a full professor or associate professor in an American department) is placed in charge of each of the three classes (senior medical, junior medical, and dental) in rotation. He is responsible for the general supervision of the students, the relevant lectures, and for the proper conduct of the dissecting room work and of the practical classes concerned. He is assisted in these tasks by two or three full-time staff members and, in addition, two or three part-time demonstrators (usually clinical postgraduates studying for the Primary examination of the Fellowship of the Royal College of Surgeons).

Six students are allocated to a cadaver (three to each side), and all the students in a particular class dissect and study the same region at the same time. This facilitates co-ordination of the various aspects of the

teaching and is more economical of staff time and effort. It also minimizes the erroneous impression held by some students that the anatomy course is nothing more than a race to dissect the human body in the least possible time.

Medical students dissect the whole body in four terms; thorax and upper limb (term 1), head and neck (term 2), abdomen and pelvis (term 3), pelvis and lower limb (term 4). Dental students dissect thorax, shoulder, and some abdomen (term 1), head and neck (term 2), and revise in term 3.

Students in revision classes only have access to dissected parts and cannot be allocated additional material, since the supply of cadavers is not sufficient for this purpose (see Appendix 1). Tutorial demonstration classes meet the needs of referred students.

For guidance as to what is required in examinations, students trust the printed word in textbooks more than the spoken word of their teachers, most of whom agree that many details of anatomy are unnecessary for the preclinical student. Few manuals of anatomy combine instruction in dissecting procedure with a selection of suitable material from the mass of accessible facts. To meet this need, a "Manual of Human Anatomy" (Aitken *et al.* [1]) has been produced by several members of the staff and has proved most useful over a number of years. An attempt is made to link together the structure with the function of the different parts of the body. The facts necessary for future clinical study are emphasized, and an understanding of the development of the region is encouraged.

Demonstrations and teaching aids.—An informal atmosphere is fostered, and students are free to call on any teacher who is available in the dissecting room for advice. Three small rooms off the main dissecting room are used for more formal discussions and demonstrations. In another room fitted out with x-ray viewing boxes, relevant films are displayed, and descriptive captions help the students to understand and interpret the pictures. Small groups of students frequently discuss the pictures with a demonstrator.

Serial views of functional activities are available together with films of pathological conditions carefully selected to aid in the understanding of normal appearances.

Students are encouraged to spend time in the library and museum. The bookstack is next to the reading room so that access to accounts of original work is easy. The museum consists of about a dozen exhibition cubicles, each with table and chairs. On the walls of the cubicles are displayed specimens, diagrams, working models, light and electron photomicrographs, and x-ray pictures arranged according to particular systems. Few anomalies and curiosities are to be found, since the displays are arranged so as to emphasize the relation between structure and function, to stimulate the student to seek further information and understanding of the subjects dealt with, and to provide quiet rooms for private study.

Supervisions.—About five supervisions are held at convenient intervals during each term. Their character has been much modified over the years in response to suggestions from both staff and students. There are no longer weekly vivas requiring a very high standard of topographical knowledge of the region under consideration. The approach is flexible and varies to suit the temperaments of the staff member and the students concerned and also the particular material under discussion. The aim is to establish a two-way flow of information, to emphasize to the group the important features of a region, and to arouse interest in its vocational and developmental implications.

Assessments are on an "A" to "E" scale, "A" being outstandingly good and "E" extremely bad. Staff are asked to spread their marks throughout the whole scale wherever possible, rather than using only "C" or "D" indicating a pass or a fail. Good students are thus encouraged, and poorer students told the worst in no uncertain terms. Examiners take these marks into consideration in determining a pass or fail of borderline students at the preclinical University examination.

Students in groups of about eight meet a

demonstrator for 1 hour a week in teaching cubicles adjacent to the departmental museum. The osteology, surface, functional, and radiological anatomy relevant to the region are studied at these sessions.

SUBSPECIALTIES

The teaching in embryology, histology, and neuroanatomy is supervised by readers who usually give the majority of the lectures and have the help of two or three members of the full-time staff in the practical classes. Graduate Honors students may also assist in the practical classes related to the field in which they are seeking a higher degree. An informal rota enables those staff members primarily undertaking teaching in gross anatomy to circulate around the subspecialty teaching courses. This provides variety for the teacher and also encourages the medical student to think of his experience in, say, histology as a rational extension of dissecting room work and vice versa.

Dental students attend shortened courses in embryology, histology, and neuroanatomy, and those points of special relevance to dentistry are emphasized.

Embryology.—Lectures cover such topics as fertilization, implantation, early stages of development and placentation, the contributions of genetic and environmental factors to congenital malformations, the processes involved in tissue growth, differentiation, and migration. The practical sessions are used to demonstrate the processes of organogeny. The medical class is divided into four groups, and senior members of the staff give descriptive introductions. The students then prepare plasticine models of the different stages of development of an organ or region under discussion. Efforts are made to illustrate the normal adult anatomy, to explain common and rare anomalies, and to emphasize the clinical and morphological importance of special regions.

Students have access to serial sections of embryos, and material from the J. P. Hill Embryological Collection is used to illustrate special points.

Histology.—The emphasis of lectures and

practical classes is on the functional activities of the tissues, and, when suitable, preparations made for use with the light microscope are supplemented by electron-photomicrographs. As far as possible, human material is used. Though histology is taught early in the preclinical course, its relevance to the later teaching of pathology is recognized. Normal and pathological material are frequently obtained from the clinical departments of University College Hospital for use in this course.

All the histology slides are prepared in the department, and students have a set of 100 on loan for the duration of the course. Student participation in the technical preparation of microscope slides is limited (a) to staining frozen sections (fat stains) and paraffin-embedded sections (hematoxylin and eosin stains) supplied to them and (b) to staining blood smears.

Neuroanatomy.—Again the emphasis is on functional and clinical aspects rather than on comparative anatomy, and the lectures cover selected topics. In the practical classes the brain is dissected, and histological preparations of normal, pathological, and experimental material are examined. Students learn to test reflexes and to perform ophthalmic examinations on one another. The extent of the systematic course and the necessary practical descriptions are outlined in Volume 5 of the Departmental "Manual of Human Anatomy" (Aitken *et al.* [2]).

DEPARTMENTAL STAFF

There is a favorable staff/student ratio, thus allowing those concerned with teaching undergraduates to allocate a large portion of their time to original work. Eleven full-time staff members participate in dissecting room instruction, and of these eight are medically qualified, as is also the histologist. The other three gross anatomists, together with two additional full-time staff members who teach embryology all hold degrees in related biological sciences. Out of the total of fourteen teaching staff members, eight received their basic training at University College, and a

similar number possess higher degrees, diplomas, or distinctions in various scientific or clinical fields.

The teaching staff meets regularly to share experiences of the courses and to formulate policy. Naturally, certain topics recur frequently; but they serve to indicate current viewpoints to new staff members, and their comments often prove to be of special interest. A sense of group responsibility and unity is thus fostered and a stimulus provided in the search for further improvements in teaching methods and in the course itself.

There are eleven full-time research associates and assistants and a variable number of visitors from other departments in the United Kingdom or from abroad, all of whom receive financial support from outside grants. The number of part-time academic staff is small and fluctuates from time to time. Three clinicians give short series of lecture demonstrations in their particular specialty and hold the title of Honorary Lecturer. Opportunities for professional and social contact between teaching and research staff are deliberately encouraged to reduce the feeling of isolation of which some workers complain in large departments. There are also a research radiographer, two artists, three secretaries, and 28 technicians variously employed in histological, photographic, electrical, mechanical, embalming, and museum work.

Analysis of the departmental publications' list reveals that during 1957, 1958, and 1959, 91 papers appeared in 24 different journals and the Proceedings of seven different societies. Fourteen articles appeared in the *Journal of Physiology*, ten in the *Journal of Anatomy*. Twenty-two were concerned with the central nervous system and ten with the peripheral nervous system, all with the use of the light microscope, while fifteen papers were on various subjects in the study of which the electron microscope was used. Twenty-two were on problems in either embryology, tissue culture, or wound healing, and the remainder dealt with medical education or animal behavior (eight), communica-

tion theory or electronics (seven), and miscellaneous subjects (seven). This account excludes the authorship of books or chapters in books and editorial activities associated with various scientific journals.

THE STUDENTS

All academically qualified applicants are considered for places in University College, and no absolute bar exists on account of sex, race, color, or religion. It is College policy to admit to the medical and dental classes only students who are prepared to take the University degree courses as distinct from a diploma course (e.g., that of the Royal Colleges of Physicians and Surgeons). In addition, students must have been provisionally allocated a clinical place in a hospital medical or dental school. In practice it is seldom possible to take more than twelve women in a class of medical students, although a somewhat higher proportion of women may be found among the dental student class. Among overseas applicants, those from areas not possessing a medical school receive some preference. There is usually an interesting ethnic mixture in each student year.

The ratio of applicants to admissions among intending medical students has remained fairly constant at about ten to one for several years but is considerably less among intending dental students. On admission, the average age of the students is 19. Occasionally one, older than the rest and usually an ex-service man (veteran), may be married, but most students defer this responsibility until after qualification at the age of 23 or 24. At the moment, more students can be accommodated in the basic medical science departments than in clinical departments. The possibility of offering a limited number of preclinical places to outstanding students sponsored by other medical schools at home or abroad which possess limited preclinical but ample clinical facilities is currently being studied. It would be hoped that participating schools could arrange to accept for clinical training a num-

ber of selected students from the preclinical classes at University College.

Although there are no fraternities, London University, University College, and University College Hospital Medical School all maintain separate hostels. The majority of students, however, live at home or in rooms in private houses within a 10-mile radius of the College. There is no student "honor" system, and staff invigilation at examinations is the rule. Student discipline comes under the Dean of the Faculty, but such is the staff/student relationship that neither party feels this situation unduly irksome. A staff/student liaison committee is not very active, less formal contacts being preferred.

A Student Health Center (annual subscription about one dollar) provides free facilities for minor treatment to students and to staff and may refer cases to the outpatient clinics of University College Hospital as National Health Service patients. Chest x-rays (free) are compulsory for freshmen, but optional to others; voluntary blood donation (unpaid) is encouraged. Two full-time dental surgeons work in the Center (no payment is required for those under 21 years of age).

If a student is offered a place in a University there is little difficulty in his obtaining a financial grant to cover his fees and subsistence provided the family is domiciled in Great Britain and their income is below a certain ceiling. The grant-giving authorities and the College discourage students from taking remunerative employment during term-time, but the extent to which students obtain vacation employment is not known. Many students hold that such experience may have a vocational and even an educational value.

UNIVERSITY EXAMINATIONS

The preclinical examination (2nd M.B., B.S.) covers anatomy, physiology (including biochemistry), and pharmacology. It is arranged and conducted in each subject by an internal examiner appointed by the department concerned and a "rotating" external

examiner appointed by London University from another London Medical School or some other University. The interests and special features of the courses in different anatomy departments are reflected in the types of questions asked in the written papers and in the details of the practical and oral examinations. The external examiners see that an adequate standard of student performance is maintained throughout the country and that examination procedure is both proper and fair.

A final opinion of an individual candidate's performance is arrived at by consideration of the marks gained in his written papers, practical and oral examinations, and his class record. Among those who sit the examination for the first time, usually between five and fifteen fail in one or other subject or in all subjects. The majority of these pass at the second attempt, but those who do not do so have to leave the College. A student must pass in anatomy and in physiology before proceeding to clinical studies, but although all students must sit the pharmacology section of this examination a failure in it does not necessarily prevent an individual from entering the Hospital Medical School for clinical studies. He must, however, pass an examination in pharmacology well before presenting himself for the final clinical examinations.

In anatomy the examination consists of two papers (each of 3 hours' duration) and on 2 other days a practical examination (1½ hours' duration) and an oral examination (about 10 minutes). In each paper, the student usually has a wide choice of questions. By dividing the paper into sections, it is possible to ensure that the students are tested in the subspecialties as well as in gross anatomy (see Appendix 2). Essay-type questions test the students' grasp of the more general topics in the course, and, occasionally, students are asked to write short notes on a number of topics. In eighteen examinations over a period of 9 years, 304 questions were asked in the anatomy papers, covering 203 topics. The details are shown in Table 1.

"True or False" and "Multiple answer"

type question papers are never set by the University and very seldom by the department in College examinations.

In the practical examination, the students attempt six questions, each lasting 15 minutes. The details vary from year to year, but the pattern is indicated in the following list.

1. X-ray films requiring identification of and comments on labeled shadows.
2. Whole brains and brain slices requiring identification of and comments on labeled structures.
3. Bones requiring identification of and comment on labeled areas or structures related to them.

"external" and one "internal," who work together. Subject matter from the whole course can be ranged over, and specimens, preparations, living models, and x-ray films are available. Though histology questions may appear in both anatomy and physiology papers, the histology practical forms part of the physiology examination.

The University preclinical examination in anatomy lasts between 7 and 8 hours. When histology and biochemistry are added to the physiology examination time, this total reaches about 20 hours. At a meeting of examiners convened by the Dean of the faculty and attended by the last of the various visit-

TABLE 1

ANALYSIS OF QUESTIONS ASKED IN EIGHTEEN RECENT ANATOMY EXAMINATION PAPERS

SUBJECT OF REGION	No. DIFFERENT TOPICS		NUMBER OF TIMES ASKED:				TOTAL NO. QUESTIONS
	Once	Twice	Three times	Four times			
Essays (general topics)	31	19	7	3	2		50
Head and neck	21	13	7	1	0		30
Thorax	12	6	4	2	0		20
Abdomen	20	8	10	2	0		34
Upper limb	17	10	5	2	0		26
Lower limb	16	7	7	2	0		27
X-rays, etc.	16	14	1	0	1		20
C.N.S.	21	11	6	3	1		36
Histology	17	11	6	0	0		23
Embryology	26	20	6	0	0		32
Histology and Embryology combined	6	6	0	0	0		6
Totals:	203	125	59	15	4		304

4. Neuro-histological slide to be identified, drawn, and labeled. Comments are required about marked structures.

5. Problem questions in which students have to make observations and/or measurements on dry or wet specimens, x-ray films, or microscope slides. Deductions concerning the functional implications of the observations are expected. For example: (a) x-ray films showing joints in different positions, e.g., rotation of the humerus or femur; mouth—open and closed; (b) bones or x-ray films of man and ape; and (c) histological preparations of normal and pathological states, e.g., kidney or thyroid gland.

6. Surface markings with grease pencil of viscera, vessels, nerves, joints, etc., on living models.

In the oral examination the candidates are interviewed by the two examiners, one

ing "external" examiners (often a pharmacologist), the results are surveyed and final recommendations made to the University. Particular care is taken with students on the borderline of distinction or of failure and with those who have passed well in one subject but who have failed in another.

The University preclinical examination for dental students differs in that the papers and orals in the various subjects are common to all the institutions which teach the course in the University of London. The examinations are conducted by examiners chosen to represent the institutions and the University. Single papers, each of 3 hours' duration, separately cover the subject of general anatomy, physiology, and special dental anatomy. In general anatomy and

special dental anatomy there are no practical examinations but only oral examinations.

CONCLUSIONS AND SUMMARY

Traditionally, the teaching of anatomy was concerned with imparting sufficient information to enable the student to understand many surgical procedures and, with little further training, to undertake simple surgical operations. Nowadays those undertaking specialist practice undergo long post-graduate studies, and modern hospital facilities are such that family practitioners are rarely required to operate even in emergencies. Thus at the preclinical stage the time freed from learning the minutiae of anatomy can be profitably used to broaden the students' background knowledge; yet the demands on medical students' time continue to increase, despite a growing awareness of the importance of retaining in the course those desirable features which are traditionally associated with a university type of education.

A description is given of the ways in which the teaching program for medical and dental students at University College London has been modified in an effort to retain these high ideals and also to meet the changing needs of medical education.

ACKNOWLEDGMENTS

The authors wish to thank Professor J. Z. Young and also their colleagues both past and present who have devoted time, ideas, and fruitful discussion to reshaping the departmental teaching courses.

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APPENDIX I

THE SUPPLY OF CADAVERS TO ANATOMY DEPARTMENTS IN THE LONDON AREA

At the moment there is a sufficiency of cadavers for basic teaching purposes but only a small margin for the preparation of dissections for examinations or other special needs and none for revision classes.

All the London anatomy departments are represented on the London Committee of Licensed Teachers of Anatomy whose task is to arrange an equitable distribution of available cadavers to the different schools according to their needs. Bodies are obtained from general and mental hospitals, public assistance institutions, and from private bequests. The supply from hospitals and institutions has fallen from 183 out of a total of 220 in 1946 to 69 out of a total of 271 in 1958. This reduction is partly explained by the payment of funeral allowances by Government Social Services to executors. However, the number of people who make arrangements for their bodies to be given to a Medical School is steadily increasing. The number of bequests to the departments in London has risen from 37 out of 220 in 1946 to 202 out of 271 in 1958.

As yet there is no public register or society whose purpose is to ensure that the wishes of a testator with regard to disposal of his or her body for medical research and teaching are carried out. Legislation which would enable this to be done has not yet been framed, and relatives or executors can, and at present occasionally do, successfully contest such testatory wishes.

APPENDIX II

UNIVERSITY COLLEGE LONDON

(Department of Anatomy)

Specimen Examination Paper for Preclinical Medical Students

9:30 A.M.—12:30 A.M.

Attempt ONE question out of section A, ONE out of section B and THREE out of section C.

A

1. Write an essay on one of the following subjects
 - (a) "Man is an ape who never quite grows up."
 - (b) The races of man.

(c) Twins.

(d) The extra-embryonic membranes that surround the developing human embryo.

B

2. Give an account of the arterial supply to the brain and its meninges.
3. Describe the central and peripheral pathways concerned in the conduction of pain impulses from the lower right central incisor tooth.
4. What are the most important external and histological features of the cerebellum? Write a brief note on the fibre tracts connecting it to the other parts of the central nervous system.

C

5. Where does the submandibular gland lie and what are its functions?
6. Give an account of the course and relations of the external carotid artery and indicate the distribution of its branches.
7. How would you describe the movements of the thumb? What muscles are involved and which nerves supply them?
8. Describe the blood supply of the heart and pericardium.
9. Give an account of the extra-hepatic biliary passages. What functions have they and how may gall stones interfere with these functions? How can radiography help to establish the presence or absence of gall stones?

An Experiment in Pharmacology Designed To Teach the Evaluation of Subjective Responses to Drugs

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The physician evaluates the response to most drugs on the basis of clinical impressions. Many courses in pharmacology provide the student with little experience in the quantitative measurement of drug action when the response is subjective. Since most advertising of drugs is based upon subjective data, the physician should know what constitutes a properly designed experiment to quantitative such drug claims. He should also be aware of the large role played by the "powerful placebo" (1).

The drugs used in the treatment of insomnia produce an effect that is largely subjective and can only be measured objectively with the aid of the electroencephalograph under somewhat unphysiologic conditions. The relative safety and extensive clinical experience with the barbiturates and some nonbarbiturate hypnotics makes them adaptable to student administration. Though the medical student seldom requires a hypnotic to evoke sleep, his personal trial of these drugs makes an indelible impression.

In the past several years a student experiment has evolved from the administration of these drugs as a part of the laboratory exercise on sedative and hypnotic drugs. It is not designed to measure hypnosis, but rather to exemplify the principles of experimental design in the appraisal of subjective responses to drugs. Judging from interest, cooperation, and favorable comment on the part of the students, one can rate the project as a successful teaching procedure. The description to follow is offered as a practical

model of a laboratory exercise for adaptation to local circumstances.

OBJECTIVES

The objectives of the experiment are:

1. To illustrate the problems and principles involved in the measurement of a subjective response to hypnotic drugs.
2. To allow the student to experience the effects of two hypnotic drugs and to compare them with a placebo on a blind basis.
3. To provide a group of student investigators with experience, under supervision, in the coding and administration of identically appearing drugs and the collection and evaluation of data on their use by the students.
4. To form a basis for student presentation of a seminar to the class on the topic of insomnia with an appraisal of their own results with hypnotic drugs.

METHOD

A group of four students was chosen for each of the two laboratory sections to serve as student administrators of the project and to collect, analyze, and report the data. Participation by the other students in the taking of the drugs was on a voluntary basis following a description of their nature, probable action, and side effects. A supply of the two hypnotics, secobarbital (100 mg.) and methyprylon—Noludar (R) Hoffman La-Roche (300 mg.)—and a lactose placebo, all in identically appearing capsules, was made available by a pharmaceutical manufactur-

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er.¹ These were coded by the author and supplied to the student investigators in similar containers. This code was not revealed to the students until after they had completed their analysis of the results. The capsules were placed in individual coin envelopes and labeled "A," "B," and "C" by the students under supervision. Six-way randomization of the order of taking the drugs was accomplished by the arrangement of the envelopes and a letter designation on the data questionnaire.

The students were instructed to take a capsule $\frac{1}{2}$ hour before retiring on 3 nights during the following week, allowing a night between capsules to prevent interaction. They were asked to avoid taking the capsules during any unusual stress or before an examination. Data were collected by means of a questionnaire designed by the students. Of the many questions they have asked, four have returned critical data useful in the evaluation of the drugs. These are:

1. For the night of taking a capsule, grade the length of time required to go to sleep. Encircle: Faster than average, Average, Slower than average.

2. In the same manner evaluate the quality of sleep. Encircle: Deeper than average, Average, Much lighter than average.

3. Evaluate your alertness the next morning. Encircle: More alert than average, Average, More drowsy than average.

4. List any side effects.

Questions 1, 2, and 3 have yielded data applicable to χ^2 statistical analysis, and question 4 has provided some qualitative data.

RESULTS

In the 1959-60 sophomore class experiment about 50 students reported their observations on all three drugs. The summarized data from the four questions asked are shown in Table 1. Statistical analysis of the data for question 1, shown in Table 1A, yielded a $\chi^2 = 39.1$ and $P = <0.05$. This testing of the null hypothesis suggested sig-

nificant deviation among the drugs which was confirmed by the results; placebo vs. secobarbital, $\chi^2 = 30.6$, $P = <0.05$; placebo vs. methypylon, $\chi^2 = 29.0$, $P = <0.05$; secobarbital vs. methypylon, $\chi^2 = 1.42$, $P = 0.9$. This suggested that, despite the rapidity with which medical students fall asleep, they felt that they went to sleep more quickly with the two hypnotics. Testing of the six orders of drug administration

TABLE 1

RESULTS OF A TEST OF SECOBARBITAL (100 MG.), METHYPYLON (300 MG.), AND A PLACEBO ADMINISTERED TO MEDICAL STUDENTS IN IDENTICALLY APPEARING CAPSULES 30 MINUTES BEFORE RETIRING.

	No. STUDENTS		
	Placebo	Secobarbital	Methypylon
A. Question 1: Rate of going to sleep			
Rate			
Faster than av.	4	31	27
Average	30	18	22
Slower than av.	9	1	3
B. Question 2: Quality of sleep			
Quality			
Lighter than av.	4	5	2
Average	37	26	21
Deeper than av.	9	21	28
C. Question 3: Alertness the next day			
Alertness			
More alert than av.	1	2	4
Average	37	27	19
More drowsy than av.	10	23	25
D. Question 4: Side effects			
No. students reporting side effects	5	15	19

showed no effect of interaction from this factor.

In Table 1B are the answers to question 2 regarding the quality of sleep. Similar statistical testing suggested that the two somnifacients produced deeper sleep. In Table 1C are the replies to question 3 which suggest that significantly greater drowsiness than normal was felt by the students on the next morning. The total number of side effects reported for each drug are listed in Table 1D. They consisted of drowsiness, dizziness, and ataxia (one case) for the drugs

¹ Kindly supplied by Dr. R. D. Phillips, Hoffman LaRoche Co.

and tinnitus, nervousness, and G. I. awareness for the placebo.

DISCUSSION

Obviously medical students are not an ideal group for testing the pharmacodynamics of hypnotic drugs. They should be reminded of this and of the differences in the action of these drugs in patients with insomnia. However, these data do provide a valid basis for teaching many of the practical points concerning the quantitation of a subjective response.

One of the obvious problems in a study of this type is communication among the subjects and interaction of their observations. This can be effectively controlled by the use of identically appearing drugs and shuffling of the coding according to some alphabetical system. It is almost inevitable that the students will expect or become aware of the presence of a placebo because of the distinctive effect of the drugs. However, this limitation means simply that medical students are excellent discriminators of true drug effects. Another problem is that the action of the drug cannot usually be measured by hours of sleep because of study and class schedules. A problem in this school has been to find a time suitably free of examinations. There is a need to complete the test rapidly enough that the code may be revealed soon enough for the student to recall his experience with each drug.

The experimental design described here is typical of many double-blind clinical tests with drugs. It provides for cross-over comparison on an individual basis, but the statistical use of this advantage has not been necessary because of the clear-cut difference between the drug and placebo. The experiment provides data suitable for χ^2 testing in contrast to the quantal and quantitative data typical of other pharmacologic experiments. It is of necessity limited to the recommended hypnotic dose of each drug. This absence of evidence that the chosen dose is

from the most sensitive portion of a dose-response curve should be noted.

Students seem to work at this project best when they have a generally free hand in the planning and analysis of the experiment. Thus, no clear-cut directions are provided to them, but only a hypothesis and the limits of the drug material available. They tend to ask many more questions of the experiment than it will answer, such as dreams, hours of sleep, and they attempt to subdivide the data more than possible. However, they show more interest when they are not guided too closely and can be allowed to make a few mistakes as long as the basic data on the test are not compromised.

At the conclusion of the experiment, the topic of insomnia is presented to the class as one of the weekly student seminars. The four students in each group present 10-minute talks in the style of a scientific meeting. The titles are, "The Causes of Insomnia," "Current Drug Treatment of Insomnia," "Problems in the Evaluation of Subjective Responses to Drugs," and "Results of a Laboratory Comparison of Secobarbital and Methypylon with a Placebo."

SUMMARY

An experiment with two hypnotic drugs and a placebo in identically appearing capsules and administered to medical students has been designed to teach the principles and problems involved in the quantitative evaluation of subjective responses to drugs. It also provides an opportunity for the student to test his objectivity in distinguishing between his response to a placebo and to hypnotic drugs. The results of a recent test of this experiment are presented and discussed.

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The Personal Health Appraisal as a Teaching Exercise

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In a course in Preventive Medicine for sophomore medical students at the University of Pittsburgh, health appraisal of the students themselves was selected as a device for teaching health assessment procedures, attitudes toward health maintenance, and basic concepts of measurement in relation to medical data. It was anticipated that a "clinical" exercise would have high interest for sophomore students, since prior to this time their educational program had been conducted only in classrooms and laboratories. Further, it was considered that use of the student's own health as the subject of the exercise would be an effective means for developing personal attitudes concerning health appraisal.

Student preparation.—Students were prepared for the health appraisal in two ways: (a) by class discussion of current knowledge concerning the evaluation of personal health problems and (b) by development of awareness of the educational objectives of the exercise. Four class hours preceding the appraisal were spent in discussion of subjects such as history-taking, the physical examination, and pertinent laboratory tests. Special mention was made of the importance, as well as the difficulty, of assessing mental health status. The distinction between screening and diagnostic procedures was made, and the necessity of modifying the health appraisal in relation to the age, sex, previous history, and other circum-

stances in the patient's background was emphasized. To illustrate this latter concept, the specific health appraisal procedures appropriate for presumably well medical students in their mid-twenties were discussed, and plans were made for using them in the forthcoming health assessment.

To foster the student role in this exercise as that of an active investigator rather than passive participant, students were informed that on completion of their health appraisal they would be required to submit a written report discussing their observations in the following areas:

1. The Health Problems Revealed by the Health Appraisal.—For example: What were they? What part of the appraisal revealed them? Were they already known to the student, and, if so, how? Would an annual appraisal have revealed problems earlier? Would it have been important to know about these problems earlier? If no health problems were revealed, to what was this attributed? Can one influence the maintenance of a "well" state? How?
2. Care of Personal Health Problems.—For example: Was care needed for the problems revealed? Did the student intend to obtain this care? Why and where? If there were problems already known to the student, why had he not obtained care?
3. Effectiveness and Suitability of Procedures.—For example: Were the questions and examinations effective in revealing all health problems? Which ones could not be detected? Should additional measures have been included? What?
4. Personal Reaction.—For example: As a patient, how did the student feel about the health appraisal in relation to—physical pri-

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vacy, confidentiality of data, fear of criticism by the examiner, dislike or fear of the appraisal findings, painful or unpleasant procedures, waiting periods, etc.? Were the findings interpreted to the students satisfactorily?

Students also were told that part of the success of the teaching exercise depended on their taking the initiative with the examining personnel in asking questions about procedures. This was intended to serve as a stimulus to the examiner in his teaching by providing him with students who demonstrated interest in the subject matter.

Copies of the Cornell Medical Index were distributed to be completed and returned at the time of examination the following week.

Staff preparation.—The examining physicians were given a mimeographed outline of the procedures and explanation of the forms to be used. In addition, they met 30 minutes before the start of the examination period to discuss and have questions answered concerning teaching objectives and methodology of the exercise. They were requested to use the examination situation in any way they thought effective for accomplishing the educational goals—namely, giving the student a personal appreciation of the importance of health appraisal and an understanding of the procedures employed.

The appraisal.—The appraisal was scheduled for Saturday morning when the outpatient facilities of the University were not in use. Nursing, laboratory, and technical personnel were hired for extra work at this time. Twenty-three internists, six ophthalmologists, and three audiologists from the resident and teaching staffs of the School of Medicine and eight senior students from the School of Dentistry volunteered their time.

The procedures and tests used were: (a) the Cornell Medical Index, (b) photofluorograph of the chest, (c) urinalysis, (d) hematocrit, (e) serum cholesterol and total lipides, (f) blood sugar, (g) blood urea nitrogen, (h) diagnostic dental examination (not including x-ray), (i) visual acuity and eye muscle balance screening, (j) sweep check audiometry, and (k) physical exami-

nation. For all but the physical examination, students were assigned in groups for the various procedures. The physical examination was performed in a private examining room, and adequate time was allowed for student-physician discussion. No more than four appraisals were made by any one internist during the morning, the usual number being two or three. The Cornell Medical Index, hearing, vision, and dental examination results were available to the physician at the time of the examination but other data were not.

Follow-up.—Four class hours following the health appraisal were devoted to interpretation and use of the collected data. Complete records of each student's appraisal were returned to him so that he might satisfy his curiosity about his health status. In three students, major health problems needing care were identified—a mass which proved to be myxoliposarcoma, hypercholesterolemia and hypertension, and menorrhagia of several months' duration. These were discussed privately with these students before the class. Findings which were common in groups (defects of visual acuity, dental caries, varicocele, external hemorrhoids, acne, etc.) were interpreted, and their significance was discussed for the entire class. The opportunity was offered any student with questions about his appraisal findings to discuss these privately with the instructors or the Director of the Student Health Service who attended the session. Reports of all significant findings were forwarded to the Student Health Office for further action if necessary.

Statistical measurement.—Health appraisal data were then returned to the instructors, and members of the Department of Biostatistics of the Graduate School of Public Health, University of Pittsburgh, discussed with the class the usefulness in medical study of combining observations made on many individuals. Members of the class were asked to suggest questions which they thought could be answered by their health appraisal data. Many questions were loosely worded and excessively broad in scope.

However, some concerned the range of values in the class for blood pressure, height and weight, hematocrit and cholesterol; and others concerned relationships of items such as body weight with cholesterol level or blood pressure.

The class was divided into small groups and given ten or twelve randomly selected health appraisal reports identified only by code in order to maintain anonymity. Members of the Department of Biostatistics were in charge of each group and assisted students in using health appraisal data to answer each of the questions posed by the class. Opportunities were utilized during tabulation to emphasize: (a) problems of choosing categories, (b) difficulties imposed by ambiguity, illegibility, incompleteness of recording, etc., (c) tendency to round off readings to integers or multiples of integers, (d) reliability of findings (i.e., reproducibility), (e) errors of measurement, and (f) statistical characteristics of distribution.

The entire class was then reconvened, and the individual groups combined their tabulations (on ten or twelve records) for the purpose of answering the original questions. Combining small groups of data effectively illustrated the variation encountered in small samples.

Student reports.—Written reports of the health appraisal were submitted by students 2 weeks following the examination. Subsequently, reports were returned with the instructor's written comments which were intended to correct misinterpretation, guide in the follow-up of health problems, and stimulate further thinking about the exercise. Reports of students contained many statements concerning their impressions of the examining physician. Some of these were:

The thoroughness, competence and confidence which the examining physician displayed seemed to typify the idealized stereotype of a doctor.

I was, in fact, a neophyte physician discussing and examining a patient with a contemporary practitioner.

It was an experience that will always affect

my own ideas about what a doctor-patient relationship should be.

I had a doctor who made me feel at ease and who answered my questions, thus making me feel important, rather than just a specimen to be studied.

Comments in reports also indicated the student's awareness of the patient's point of view of the examination situation.

The examination revealed many important practical points of the behavior of physicians toward patients. I would never have revealed all the facts except that I was sure of the confidentiality.

I was relieved to be one of the first examined before the nurses got the idea to have everyone wait outside in a modified nightshirt.

The physician should be aware of the importance of listening to the answer to the questions he asks.

I can see how a physician must be concerned with physician-patient relations, because there were many times when I could have withdrawn or felt uneasy or uncommunicating.

Not all student comments were laudatory, for the students had entered the health appraisal situations with expectations which in some instances were not fulfilled.

The physician did not examine my lungs with a stethoscope until I requested it.

The examining physician completely failed to notice the thirteen inch scar on my leg.

The weakness of the exam lies in the ironical fact that the examining physician forgot to ask for the history.

In addition to these specific comments, many students noted the lack of a mental health assessment in the appraisal. Two of six females questioned whether it would not have been wise for them to have had cervical cytological examinations (which, unfortunately, had not been done).

Discussion and evaluation.—Many of the intended educational objectives were achieved in this teaching exercise. As anticipated, sophomore medical students had high interest in a clinical exercise involving their own health. Quality of written reports and favorable comments of both students and physicians suggested that the careful

preparation of both groups for the health appraisal increased its teaching effectiveness. The written report proved an effective technic for stimulating student interest in the health appraisal and for synthesizing and evaluating the experience afterwards. Some students sought remedial action for defects identified during this exercise, but the number is not known. All major problems were followed by the Student Health Service. Analysis of the reports indicated that most students during their health appraisal were aware of their dual identity as a patient and physician and so obtained appreciation of both roles. As indicated in the comments quoted earlier, students, in critically evaluating unsatisfactory experiences or omissions during the appraisal, gave evidence of knowing the technics employed in appraisal and their purposes. Generally, however, students failed to understand the distinction between diagnostic and screening examinations and to appreciate the necessity for varying health appraisal procedures in relation to the age, sex, and other characteristics of the patient.

The use of the class data for an exercise

in biostatistics was only moderately successful. It was anticipated that the students' involvement in the data collection would make statistical procedures more meaningful. This did not seem to be the case. The data collected and the questions proposed by the students proved to be too complex for initial teaching of biostatistical principles.

The general evaluation of the exercise was favorable, and the apparent success of this method of teaching medical students from their personal health experiences has led to the proposal that the branch of the University Health Service responsible for care of medical students be reorganized to incorporate teaching as a major objective. In such a service it is planned that the student will experience therapeutic and preventive care of high quality and that in this setting of his own experience he will be taught about the scope and costs of comprehensive medical care, develop skills in giving such care, acquire insight into attitudes of patients concerning health and disease, and become committed to health promotion and maintenance as a goal of medical practice.

The Role of Psychiatry in Medical Training

An Evaluation of Graduate Training in Psychiatry in the U.S.A.*

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There at present are 82 recognized schools of medicine in the U.S.A. After having graduated from one of these universities, physicians who wish to specialize in psychiatry may continue their training at one or more of the 282 hospitals whose training programmes have been approved by the Council on Medical Education and the American Board of Psychiatry and Neurology. The National Institute of Mental Health, U.S. Public Health Service, alone provides grants amounting to between 400 and 500 million Danish crowns a year to support psychiatric research and specialized training.

This vast quantity of training and research must naturally make one careful when trying to evaluate American standards in the field. One must keep in mind that whatever one sees and hears on one's tour of this continent can only reveal part of the true situation; one's experiences are necessarily restricted not only by the time and funds at one's disposal, but also inevitably by one's previous attitude and interests, and are therefore unlikely to be representative.

The visitor must also keep in mind the fundamental differences between American society and institutions and the conditions he is used to in Scandinavia: America's

short history; its pervading capitalistic economy; and, not least, the considerable administrative autonomy of the individual states, which first seems to have been invaded by tendencies toward increasing federal influence during the past few years, especially as regards education and health services, and therefore now tends toward homogeneity.

Further, in order to be able to understand the conditions prevailing in medical education, it is necessary to have at least some knowledge about the American school system: After the 8-year grammar school, the student proceeds to the 4-year high school—generally regarded to be the weakest link in the American educational chain. High school is followed by 4 years at college which are partly a complete "university" education, and partly, during the last 2 years, a more specialized introduction to the "graduate" school—in *casu* the medical school—which, since it lasts only 4 years, also differs in important ways from the Danish university medical training, not least regarding the instruction in the basic, preclinical subjects.

Finally, two important factors mean that there must be a clear, radical difference between American and Scandinavian conditions as regards training, research, and treatment, particularly in the field of psychiatry, namely. The fact that more than 80 per cent of the young psychiatrists in America enter private practice immediately after completing their specialist training—which

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is, perhaps, not surprising in view of the fact that psychiatrists, with an average income of about \$20,000 a year, are at present the best paid physicians in the U.S.A., although it also means that there are difficulties in recruiting personnel for the mental hospitals and psychiatric departments. Furthermore: The fact that American psychiatry—particularly psychiatric training—is currently dominated to an exceptional degree by psychoanalytic concepts and theory. The social and ideological background for these conditions, as well as their professional consequences, will be discussed later. I should like to point out immediately, however, that as far as I can judge, the psychoanalytical emphasis is not merely a passing fashion, but has already become a firmly based tradition in American psychiatry. The one-sidedness which has undoubtedly been a consequence of the psychodynamic dominance will in the coming years probably be balanced to some extent in psychiatric research by recent advances in neurophysiology, neuropharmacology, enzymatology, and human genetics. However, it is equally certain that psychiatric training, and therefore also both the specialists' and the general practitioners' attitudes toward psychiatry, will for at least another generation be governed by analytically orientated, psychodynamic ideas.

In what follows I have attempted to describe the principles underlying graduate training in psychiatry in the U.S.A. as they appear to me after having visited several university psychiatric departments and similar training centers in various parts of the country. My main intention is, of course, primarily to discuss whether it is desirable, and if so, to what extent it is possible to introduce similar principles into the Danish training system.

I may mention here that I have visited the psychiatric departments at the following university medical schools: Harvard, Yale, New York, Cornell, Columbia, Johns Hopkins, Chicago, Illinois, Northwestern, Tulane, University of California (San Francis-

co), and University of California (Los Angeles). I also visited various institutions which are not strictly university hospitals: Cook County Hospital and Michael Reese Hospital, Chicago; Menninger Foundation, Topeka; St. Elisabeth's Hospital, Washington, D.C.; and last but not least, The National Institute of Mental Health, Bethesda, Maryland.

The Flexner Report.—American medical training has only a short history. From a European point of view it first became a university subject in 1893 when the Johns Hopkins University School of Medicine was founded and when medical training for the first time started to become systematically integrated with medical research. Naturally there were trained physicians in America before 1893, but they possessed only a frail scientific background. For the most part their theoretical training had consisted in a short series of lectures about the most important clinical subjects given by the local practitioners, who passed on in raw shape their imported European medical knowledge. The publication of the so-called Flexner Report in 1910 disclosed such essential deficiencies, primarily in the training the physicians received in the basic subjects and regarding the numerous second-rate, though profitable, medical colleges, that most of the colleges were forced to close shortly afterward. Of the 150 medical schools in Canada and the U.S.A. in 1910, only about 80 still existed in 1930.

The decidedly impressive scientific developments which have marked the progress of the university medical schools since the Flexner Report will not be discussed here. I wish merely to indicate that the American medical training has surprisingly young traditions, and one must naturally take this into account when attempting to understand the current general situation regarding graduate and post-graduate medical training in general and psychiatry's situation in particular.

The Ithaca Conference.—The Ithaca Conference in 1951 concerning "Psychiatry in Medical Education," and the report pub-

lished in 1952 which contained the discussions and resolutions, would seem to be as important for psychiatric training in the U.S.A. as the Flexner Report for medical training as a whole. Psychiatric training is naturally still varied in extent and quality, but the interstate differences, which, prior to the Ithaca conference, were so pronounced that it was meaningless to discuss American psychiatric training in general, have already to a surprising degree given way to increasing homogeneity. My impression from my visits to the above mentioned university departments is that the Ithaca report has been of decisive importance for the development of psychiatric training in the U.S.A., and that the principles mentioned in the report, supplemented by the "Outline for a Curriculum for Teaching Psychiatry in Medical Schools" published in 1956 by the American Psychiatric Association (3), will determine the evolution of psychiatric training for many years to come. It therefore seems reasonable to acquaint the reader with the main trends of the report (1).

The conference in Ithaca was arranged by the Association of American Medical Colleges and the American Psychiatric Association, whose president, John Whitehorn, was president of the conference. Among the participants were Karl Bowman, Stanley Cobb, Franklin Ebaugh, Jack Ewalt, Francis Gerty, Alan Gregg, Robert Heath, Maurice Levine, Theodore Lidz, Erich Lindemann, Karl Menninger, Frederick Redlich, John Romano, and Bernard Wortis—but it is interesting to note that the majority, namely 50, of the conference's 82 members were not psychiatrists, but specialists in medicine, pediatrics, sociology, or deans from nonmedical faculties. It was therefore natural that the conference did not attempt to specify the details of psychiatric training, but tried to formulate and clarify the role of psychiatry in general medical education. In this way, the conference proved itself to be the exponent of and a stimulus for a reorientation in American medical education which necessarily and inevitably will—and ought

to—have consequences for the Danish medical training system.

From a very general point of view one might say that this reorientation attempts to reintroduce the humanistic principles into medicine—to increase the physician's interest in the patient's emotional and social problems and in the patient as a personality rather than an object distributed arbitrarily between various specialities and laboratory techniques.

More specifically one may say that this reorientation expresses that one has at last realized that medical training must accept the consequences of the fact that human beings, apart from their biological inheritance, also possess an extrabiological inheritance—a cultural inheritance, if you will—and that the individual's development both in sickness and in health will be partially determined by the ability to assimilate this inheritance which it encounters throughout life in its dealings with other human beings (2).

The reorientation also expresses an optimistic belief that psychiatry—and by psychiatry the report unequivocally means psychodynamically orientated psychiatry—has already progressed so far that it may serve as a scientific basis for understanding and treating inter-human relationships in general, as well as the clinically vital patient-physician relationship in particular.

Such ideas are not new. It is, however, new for such ideas to be specified in concrete standards of instruction, and to see that these standards have to a great extent been adopted by the best universities throughout the U.S.A.

Curriculum.—The generally accepted principle is that psychiatry is taught throughout the whole period of medical training—i.e., during both the 2 first, so-called preclinical years and the 2 last, clinical years.

There are three courses during the pre-clinical years, side by side with physiology, biochemistry, and anatomy. The first course concerns the normal *development of personality* in the widest sense, the second

general psychopathology, and the third *interview technique* and the therapeutic use of interpersonal relationships in medicine.

During their third year, students at most universities work at least 1 month in a psychiatric department; during their fourth year they work as long or longer at a psychiatric out-patient clinic, and when possible, also for some weeks at a child psychiatric department.

The first year's course generally covers the following subjects:

1. The interrelationship between physical maturation and environment, and the importance of interpersonal relationships for the development of personality at its various stages, including such subjects as: the long period of physical dependency of the infant; the importance of the general attitude of the parents, and especially that of the mother during the period of breast feeding, for the child's experiences of dependency and safety; the development of the child's ability to differentiate between itself and its environment, between phantasy and reality; the conflict between the child's incipient independence (particularly with regard to learning to walk) and its need for safety and dependence, in connection with which the regression phenomenon is discussed; identification with the parents, ambivalence toward them, and problems concerning sibling jealousy; adjustment to the school environment and the role of intellectual and personality development; problems of puberty; opposition contra conformity; the final development of ego-identity; marital and premarital sexual problems; the influence of pregnancy, birth, and the parent role on the relationship between the married couple; the frustration encountered by the middle-aged man; adjustment to the menopause and to the children's leaving home; physical and mental reduction in old age and the mental invalidity of oldsters.

2. The social and cultural influences on the development of personality and behavior, including subjects such as: the ethnic and social, class-determined differences in customs and habits; the interplay between

individuality and culture and the adjustment of the individual to urbanized society.

3. The influence on human behavior of the ability to think and speak: the concept of intelligence; learning; the use of symbols in thought.

4. Finally: the influence of emotions on physiological function—a subject that is as far as possible related to the parallel course in normal physiology.

During the second year's course in general psychopathology it seems that most universities introduce the students by means of clinical demonstrations to the classical psychiatric syndromes in order to prepare them for their practical clinical training during their third and fourth years. Apart from this, however, the dominant trend is to interpret psychopathology as the science of the pathological development or manifestation of normal mental developmental and behavioral variations. In agreement with this, the courses are often structured in the same pattern as the first year's review of normal personality development—i.e., exemplification and attempts to give the students a "dynamic" understanding of the disturbances and deviations which are characteristic of the various periods of life: eating problems, enuresis or nightmares in childhood, behavioral disturbances during the first school years, juvenile crime and homosexuality, the psychopathology of alcoholism, etc. Another consequence of this tendency is that the theoretical review of the psychodynamics of the various types of neurosis and psychosis primarily attempts to introduce the students to the mental defense mechanisms which they will encounter to some slight degree in any and every patient they will have to deal with later in general practice. An undeniable consequence also is that the students—and according to my experience also the psychiatric residents—have very little knowledge about the organic and endogenous psychoses, their symptomatology and treatment.

When one is acquainted with the basic trend in the preclinical instruction, it is not surprising to find that the practical clinical

training during the third and fourth years concentrates upon psychotherapeutic aspects to a strikingly one-sided degree. Granted the students during their 4-6 weeks' training at a psychiatric department or mental hospital in their third year obtain some knowledge of the most important types of somatic therapy, of the rules regarding compulsory admission, of the treatment of acutely excited or suicidal patients, and the like. However here, and particularly during their fourth year, when they in all spend 1 or 2 months at a psychiatric out-patient clinic, the students for the most part use this time talking with a few patients whom they follow-up for as long as possible—at some places up to 6 months with one or two weekly interviews. The principle is that the students during this therapy, which undoubtedly takes place on the background of but little experience, are supervised by a member of the department's permanent staff. This type of teaching is very intensive indeed, since usually two students discuss their patients one or more hours a week with their tutor.

Finally, psychiatric, or, in other words, psychodynamic, principles are being integrated in the general medical training via so-called liaison teaching. In practice this liaison is effected by a psychotherapeutically oriented internist or a medically oriented psychiatrist participating in the supervision of the students during their pediatric and medical—especially out-patient—clinical training. In addition, the students as far as possible are given the opportunity of following one or more obviously psychosomatic cases. It is obvious that this trend makes it possible to supplement the purely psychiatric curriculum effectively.

Remarks.—When I visited the university departments listed above I tried to gain some impression as to how far it had been possible to translate these principles and teaching standards—which are specified in the Ithaca Report—into practice.

In advance I was skeptical. When one knows what it has cost to manage to introduce three short courses in psychiatry in the

Danish medical school, and a month's obligatory clinical experience, the American standards seemed to be utopian.

With the reservation that I visited what are probably among the finest departments in the U.S.A., I must nevertheless affirm that it has been possible to introduce such extensive psychiatric education.

Quantitatively, what one might call "pure" psychiatric training at most places has more than 400 hours at its disposal during the 4 years. This seems to be rather more than what was originally stipulated.

It is also impressive to see how closely the actual teaching approximates the suggestions in the Ithaca report as regards both the timing of the various courses and clinical training within the medical training as a whole, and the type and content of the teaching. This is, however, perhaps explained partly by the fact that many of the departmental heads were active participants in the Ithaca conference.

Naturally, many departments have modified the curriculum to some extent, as for example the University of California, Los Angeles (Normal Brill), where the third- and fourth-year courses have been interchanged so as not to "frighten" the students by introducing them to the major psychoses at too early a stage, or as at Johns Hopkins (John Whitehorn) which more radically is experimenting with introducing the students to the course in their fourth year at college and thus lengthening it. In this experiment Whitehorn also attempts to introduce humanistic disciplines into the medical curriculum, although he has been criticized for trying to do the opposite. My main impression, however, as I have already mentioned, is that the teaching is surprisingly uniform at all the departments I have visited.

Special interest naturally attaches to the choice of *teaching methods*. It is well known that attempts are being made to individualize education by continuously reducing the number of students per active teacher. On the other hand, it is probably not generally known how far one has already managed to

put such ideas into practice in many departments in the U.S.A. It was the rule, not the exception, that students in their third and fourth years throughout their clinical training were attached two and two to a single tutor, who, in hour-long conferences several times a week instructed them in examination and therapeutic techniques. After having had the opportunity to attend quite a number of such supervisory conferences, I feel even more convinced of their great pedagogical value.

Although the preclinical training, as mentioned above, mainly takes the form of courses of lectures, many departments are trying to avoid lectures *ex cathedra*. New Haven (Fr. Redlich) is one example, where I attended several of the lectures in general psychopathology, and where the students, after the lecture, were divided into groups of six and discussed the lecture with their own tutor for 1½ hours. At other departments, such as at the University of Chicago (Aldrich), the so-called "home care service" came into function as early as the end of the first year. Each student was put into contact with a pregnant patient via the obstetric out-patient department, and he followed her throughout the remainder of her pregnancy and then for the first year after birth by means of regular visits to her home. This experiment, which naturally demanded close supervision by an experienced tutor, aimed at giving the student some practical insight into the mental problems which arise during pregnancy and when caring for the infant, and especially with regard to the parents' attitude toward the newborn.

Instruction in interview technique was also particularly good at the University of Chicago's School of Medicine. Small groups of students observed the older residents through a one-way screen. At other universities training was based on demonstrations, criticism, and discussion of interviews recorded on tape.

Evaluation.—The first question which one immediately asks after having gained some personal insight into the extent and intensity of instruction in psychiatry at the

American universities is: How is it possible? How is it possible in the general fight for space on the time-table to give psychiatry such relatively good conditions compared with the somatic disciplines? How does one manage to obtain the necessary teachers?

The last question is the easiest to answer.

To some degree the problem is one of money of course. First, the number of permanent full and associate professors and the number of part-time assistant professors is far greater compared with the number of students than in Denmark. When the number of students approximated the number in the medical school at Copenhagen University during the second part of the course, there were fifteen to twenty full- or part-time teachers at the universities I visited; in Copenhagen there are four! This is undoubtedly a fact we should not let our authorities forget!

Second, the residents—i.e., the young physicians—who work for a 3-year period at the same hospital as part of their (*in casu*) psychiatric training at most departments have been systematically incorporated into the teaching of students. Often second-year residents participate in the preclinical teaching and third-year residents supervise the students who are doing clinical work. When one takes into consideration how demanding their own resident training programme is, their tutorial duties are a considerable extra burden. Such duties are, however, regarded to be a natural part of the job for which they have been employed, and are, quite rightly, deemed to be of considerable value for the training of the residents themselves. This is undoubtedly a fact we should not let ourselves forget!

Finally, it is a tradition in the U.S.A. that the local private specialists teach without any form of payment for some hours each week. These so-called instructors are mainly used for tutoring the residents, but their participation in the teaching of the students is often an important supplement to the staff of university instructors proper. Their motivation for taking such work upon themselves consists, I believe, in the prestige at-

tached to such work, and in the fresh impetus one receives when teaching younger persons. Many, however, also appear to see their work as a means of repaying a professional debt to their university. The reality behind such statements was clear when I visited San Francisco, to take an example. In this city—which naturally attracts many physicians—each and every one of the approximately 100 private specialists in psychiatry had said that he was prepared to participate voluntarily in the training of students and residents in one or another way.

The realization of individual training to an extent that leaves Denmark's primitive conditions far behind is perhaps easier to understand in view of the above.

It is more difficult to explain the prominent role of psychiatry in American medical training.

I can mention several points that contribute to such an explanation, but I cannot provide an exhaustive answer.

Primarily one must bear in mind the short history of the American medical schools compared with the European schools. The somatic tradition, firmly anchored for hundreds of years in Europe, is quite young in the U.S.A. The development from a mainly static or structural attitude toward medicine, from the pathological-anatomical and histological tradition of Virchow, to the modern pathophysiological, functional attitude, has therefore probably been easier there than here. Thus, it would seem, there has also been more receptivity to the dynamic-psychological aspects of academic medical education in the U.S.A. than in Europe.

It is tempting, however, also to include more general sociological traits when attempting to explain the prominent position of psychiatry in American medical education, even though one thereby starts to skate on thin ice and enters into hypothetical explanations.

One might start by asking why it is that psychodynamic, especially psychoanalytic, theories and therapy have dominated

American psychiatry far more than in Europe?

The fact that several of the most important European psychoanalysts emigrated to the U.S.A. in 1933 or later has naturally furthered such a development, but it does not appear to be the sole reason.

It seems more likely that one is dealing with a socially or culturally determined need. In this respect it is worth while to mention two mutually contrasting features in the American way of life. On the one hand openness, easy contact, immediate will to help—experienced by Europeans as an unreserved and effective helpfulness—which presumably must be related to the not so historic pioneering times when the satisfaction of common needs was necessary for life itself, to the immigration which keeps such traditions for mutual assistance alive, and to the fact that American society is far more mobile than the European and therefore presumably more apt to accept and depend upon interpersonal contacts over and above those determined by family ties. In contrast to and conflicting with this one has the extremely quick industrialization, urbanization, and, during the latter years, suburbanization, which has brought an unprepared people face to face with the dissolution of their communal society and the threat of loneliness which seems to be one of the results of the establishment of townships.

It does not appear to be unreasonable to assume that a medical philosophy based upon the importance of interpersonal relationships for human development and health will find a particularly well-disposed background in a culture of the American type which has entered into such cultural conflicts. It also seems reasonable to suggest that a people who, by reason of the triumphs of somatic medicine once again are being conditioned to regard the physician as an almost magical authority, therefore also to a large extent will soon become used to the idea of going to a psychiatrist to find help in their conflicting situations.

In fine: the American psychiatrist is probably not more highly estimated by his non-

psychiatric colleagues than in Denmark, but the American people undoubtedly have a far greater and more conscious desire to seek aid from dynamically orientated psychiatrists than the people in Scandinavia, for example. This, as far as I can see, is the explanation of the prominent place psychiatry has achieved in current American medical training.

It is not without interest in this connection to mention that the sub-committee which had the task of analyzing the type of medical aid needed by Americans (during the Ithaca conference) started its investigations by asking a large number of people what they expected from their physician, and that the answers primarily listed the following needs and lacks: that the physician gives himself time to listen to the patient's personal problems, shows interest in their emotional conflicts, is acquainted with their social situation, and understands their anxiety and feelings of uncertainty.

Although the prominent role dynamic psychiatry plays in American medical training is, as far as I can see, based upon a rather vague social need rather than on acceptance of psychiatry as an exact scientific discipline, there is another fact which must be taken into consideration in this connection, namely, that many physicians who have chairs in somatic subjects were medical officers during the last world war. One can hardly doubt that the insight they thereby achieved under dramatic circumstances into the importance of emotional stress and pre-morbid personality for symptomatology has in many cases decided their attitude toward instruction in psychiatry.

These are the results I have reached regarding the three questions I wanted to answer during my visits to American universities, and which were based upon the standards specified in the report for the Ithaca conference for graduate training in psychiatry, namely: *whether* it had been possible, and if so *how* it had been possible, and finally *why* it had been possible to attain such standards.

The final question is: Ought one in Denmark attempt to approximate the American example, and, if so, to what extent and in what form?

The immediate answer seems obvious: There is little reason to doubt that medical training primarily aims at qualifying general practitioners and providing a basis for later specialization; further, that the general practitioner will in each and every case encounter mental phenomena and problems which are important for his work; and finally, that his training does not fit him properly to encompass this aspect of medicine. One can therefore hardly disagree about the conclusion: That psychiatric training in its broadest sense should be extended so that one may provide for the general practitioner's needs to the same extent that one satisfies them with regard to surgery and purely medical problems.

There seems little reason to doubt that the first and most necessary step in this direction is to integrate psychiatric training throughout the whole period of clinical tuition (i.e., the second part of the course). To concentrate psychiatric training as at present in Denmark to the 3 first semesters of the 7 devoted to clinical tuition is obviously unreasonable and clearly mistaken.

Finally, there is, as far as I can judge, no doubt that the students' clinical training ought to follow American standards to a far greater extent than is possible today. One should emphasize out-patient training, individualization of tuition (by increasing the tutorial staff), and the general importance of the relationship between patient and physician for all therapy.

To this extent I consider that one should follow the American example without reservation.

The crux of the problem, however, is to what extent one ought to incorporate psychiatry into *preclinical training*.

There is, presumably, no doubt about the desirability of acquainting medical students with our exact knowledge of normal psychology, especially the psychology of personality, side by side with their courses in

normal physiology. However, the problem is whether it is possible to provide such teaching at a preclinical level in a scientifically defensible manner. In other words, I question whether it is possible to establish some form of psychological training which is relevant for general medical practice—apart from the psychology of perception—before the students have some clinical experience.

My visits to the American schools of medicine have reduced my doubts on this point, but have not stilled them completely.

One might assert that this problem should be finally decided by a discussion about the scientific exactness of the dynamic theories of personality, but this is hardly reasonable.

The American dogma that psychiatric training should take place throughout the whole medical course, including the preclinical years, is not usually based upon overestimation of the subject's scientific exactness. On the contrary, in fact, one realizes that clinical psychiatry only may be regarded as a medical discipline owing to the empirical data available concerning mental symptoms, the predictable course of mental diseases, and, to a certain extent, the therapeutic possibilities. The dynamic theories of personality, on the other hand, are to a large extent still conflicting, based upon hypothetical assumptions, elude experimental proof, and, therefore, cannot at present be taught as a basic subject on the same footing as physiology, for example.

The motivation for including psychiatry in the preclinical training is therefore not primarily that of providing a basis for clinical instruction in psychopathology or that of supplying the student with exact, empirical data.

The motivation is to be sought in the wish to tinge the student's attitude toward his subject from the very first day in a humanistic direction, in the widest sense of the word, and to teach him to regard his patient as a personality equally subjected to physical, mental, and social forces.

From this point of view—and not from the question: scientific or non-scientific—

one must accept that it is quite legitimate to treat psychiatry as a basic medical discipline, and to take the necessary consequences when planning the programme for medical schools in Denmark.

I have attempted to describe how such plans have been laid in American schools of medicine.

It is immediately obvious that attempts to effect similar plans in Denmark will meet considerable opposition—primarily from physicians without psychiatric training. It is also obvious that the extension of the concept of psychiatry expressed in the American experiment—which easily may lead to a diffuse vagueness—presents many problems which psychiatrists must treat seriously.

First and foremost, however, I believe that all psychiatrists must realize that we have greater responsibilities for general medical training than we have hitherto shouldered.

The Danish Psychiatric Society has, during the past few years, effectively attempted to provide firm boundaries for postgraduate training in psychiatry. Its next task, as I see it, must be to prepare at once—perhaps by establishing a special committee—for the situation that will arise when the next revision of the medical curriculum makes it possible to give graduate psychiatric training its proper place.

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The Goals of Undergraduate Psychiatric Education at Temple University School of Medicine

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The importance of psychiatric education in medicine is no longer disputed. We have progressed from discussing the percentage of patients who come to doctors for primarily emotional reasons to recognizing that all patients are human and have emotions. They are not simply objects upon which we exercise our highly technical and often successful manipulative skills. In an era of change, and any era is one of change, we have come to see our patients presenting themselves as needing medical assistance for a wide variety of conditions: physical, economic, emotional, social, and even philosophic. It is just that patients in distress, no matter what the cause, often find it most acceptable to phrase their difficulty in medical terms.

We have always known, but not always attended to the fact, that the body participates in this expression of distress, whether engendered biologically, psychologically, or sociologically. Patients turn to medicine, since ours is the succoring role. We hold out the promise to comfort if not to heal. Because of this, we endeavor to prepare medical students to recognize that etiology in medicine is broadly based. We emphasize that "cause" in medicine is often related to what can be done to ameliorate or properly manage a condition. This "cause" is not that of the philosopher but simply the point at

which practitioners of medicine can most effectively intervene (2). We try to teach those skills which we in psychiatry have hard won. Although too often these are insufficient in treating large numbers of our patients effectively and quickly, they remain our best means of intervention in the process of illness. We acknowledge the fact that a teacher presumes a good deal when he presumes that "what can be learned can be taught" (5); but as teachers we know no other course but to try. We place a considerable amount of hope in our present knowledge of dynamic emotional forces and the prophylactic effect that this knowledge, widely and effectively used, can have.

Development of undergraduate psychiatric education in the U.S.—We have seen psychiatry emerge in medical schools from conjoint departments of neurology and psychiatry to autonomous departments with responsibility as both a basic and a clinical science. Three systems or types of psychiatric training in medical schools predominate in this country today with, of course, many variations and combinations. The oldest follows the classic departmental design of being given a block of time in the curriculum and in this time conveying as much knowledge as possible about our specialty. As a new department, psychiatry brought with it from its mental hospital setting that with which it was most familiar and which was most easily presented—descriptive, nosological psychiatry. There was no doubt about its ability to present and describe a parade of definitively emotionally ill patients. Teaching a psychiatrist's psychiatry seems to be

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the goal of this system. Adjusting to the medical school setting fostered borrowing the teaching methods of other departments as psychiatry sought status in getting curriculum time as well as the attention of the students. We still hear proponents of the block system remark about the students, "Surgery has them in the operating room to teach them the surgery that most will never do." Some departments are still using other departments as standards for their own teaching rather than developing standards more appropriate to their own specialty's goals.

Certainly we can see the logic of this pattern: it fits in with the structure of the curriculum; it has the advantage of precision in departmental control of course content; but it frequently has the drawback of becoming merely a rapid course in specialty training. Personality structure, psychopathology, and dynamics may be taught, but there is great emphasis upon descriptive psychiatry with a large segment of time devoted to inpatient locked-ward psychiatry. This may leave the students with a properly admiring attitude toward the difficult problems psychiatrists face, and may increase their respect for our daring in attempting to do anything for such severely ill patients. However, it also convinces them that they are unlikely to find such patients in their practices. Through prolonged experience with such grossly ill patients, the students' willingness to perceive subtle variations in their "normal" medical patients may be decreased. Seeing such variations means that they must unpleasantly identify their patient with the severely ill mass of patients in our large institutions.

The second system of psychiatric teaching developed when psychiatry was called upon and felt a need to demonstrate a wider area of competence, at the time when medical education in general became aware of new pressures from without and within. The pressures from within were clinically for the application of psychiatric treatment to more patients and, in the basic science years, for a clearer definition and under-

standing of normal personality development and dynamic psychopathology in relation to the clinical practice of medicine. Psychiatry itself, now familiar with its surroundings and no longer abashed at what it could offer, began to press for more curricular time. The pressures from without were from patients themselves who were demanding more time and personal attention and from leaders, such as Allen Gregg, who influenced the great foundations. By their scholarliness and wider appreciation of the role of emotions in health and illness, they strengthened the move to revolution in undergraduate psychiatric education and medical education in general.

With a fixed amount of time available, there is a reciprocal decrease in curricular time as more knowledge in each special area is thought important to bring to the student. This forces a reconsideration of the content and means of presentation of the specialty. Blocks of assigned time tend to be defended as necessary to their teaching goals by even the best-intentioned teachers, so there is resistance to change. Questions of teaching goals of the medical school as a unit rather than that of each department are entering wedges. Are economies in teaching time possible? Is the block system of assigned time necessary? These questions and others were met in some instances, notably Western Reserve University (3) and Stanford University (4), by revolution in re-evaluation of the total curriculum. Subject, teaching time, and course content are decided by interdepartmental committee. Group decision requires group adherence, and naturally this is not accomplished without some major stress. It has the notable advantage that vagaries of educational goals are subjected to the cold eye of interdepartmental scrutiny. Clarification of aims acquires an immediacy that cannot be put off. Also, tolerance and humility are likely eventual consequences.

In such radical curricular changes, psychiatry generally has had assigned to it the role of interpreting the personality of the patient and guiding the students' under-

standing of its effect in illness. There is more time devoted to such evaluation, particularly in the first 2 years when the students' contact with the patients or "normal" families is increased.

The third and most prevalent system in teaching undergraduate psychiatry is one we consider evolutionary rather than revolutionary. While remaining within the block system structure, psychiatry has taken a clinical role in relation to the medical school curriculum. It has found the usefulness of respecting the resistances of other departments, particularly the basic sciences, and of working in clinical areas where the need for psychiatric knowledge and technique is most easily perceived.

Although limited by the amount of curricular time assigned it in its youthful days in the medical school, psychiatry began to look for areas of potential expansion within this block system. It began using what has been referred to as "infiltrative" (1) techniques in relating its own teaching to that of other departments. This has occurred in different ways and to differing degrees in all the medical schools in the United States. Since the majority of the changes in undergraduate psychiatry education in the United States have been evolutionary rather than revolutionary, we believe this is likely to be the case with our good neighbors to the south. We will present this development in terms of what happened at Temple University Medical School.

Psychiatric education at Temple Medical School.—At Temple, infiltration, once a concept of "subversion," is now a welcomed and agreed upon method of relating psychiatry to the curriculum on an interdepartmental basis. We have had a continuing good relationship with the Department of Medicine, begun in the concept of psychosomatic medicine in 1933, and continued in the teaching of Comprehensive Medicine, in which equal numbers of psychiatrists and internists teach in the general medical clinic of the Medical Center. Teaching together with other departments has lessened the pressure for increase in curricular time by

our department. We have shifted from concern about doing things as other departments do to an emphasis upon teaching in the clinical setting for which psychiatry is best suited. We have moved into a status vacuum. We have focused our attention upon the setting most like that in which our students will eventually practice—the outpatient clinics. We feel sure that it was a surprise to many that we could obtain over a half million dollars to support the combined teaching and research into patient care of medicine and psychiatry in an outpatient medical clinic.

In Correlation Conferences given by the Departments of Medicine and Psychiatry, we teach psychiatry in conjunction with the basic science departments: anatomy, microbiology, physiology, pharmacology, and pathology (32 contact hours). For example, early in the anatomy course, we work backward in our presentation, from the cell—to Papanicolaou smears—to a woman with carcinoma of the cervix—to that particular woman and her emotional reactions to her illness. When the students progress to the skin, we discuss patients with skin diseases. We teach approximately 350 contact hours with the Department of Medicine, 80 hours with the Department of Obstetrics-Gynecology, and 30 with the Department of Pediatrics. We have 135 contact hours under direct departmental control in the curriculum, plus an elective consisting of the supervised psychotherapeutic treatment of patients which is taken by one-fourth to one-third of the student body. In our own curricular time we invite participation by other clinical departments, usually related to the presentation of a patient or of concepts of medical practice. We have taken the responsibility for the introduction of behavioral scientists (philosophers, anthropologists, sociologists) into our medical school curriculum.

What are our goals for our students? We wish to equip them with information about emotional development and the stresses of living. We wish to enable them to recognize the symptoms of dysfunction. We wish to instruct them so that they can recognize the

harmful potential in situations of intra- and interpersonal stress where that stress has not yet resulted in symptoms. We wish to teach them the techniques of remedial action so that this knowledge becomes incorporated into the general pattern of being a good physician. In this way we can expect to produce physicians better equipped to manage the problems of human distress.

If we are to come close to these goals, our teaching must have impact value. It must be presented in language immediately understandable by the student. We do not need to be afraid that what we have to teach is after all only common sense, nor should we pridefully react by heaping up esoterica. If we can always be accused of doing what common sense dictates, we will be doing well. It is certainly common sense to recommend to the medical staff that a 65-year-old woman with a right-sided paralysis subsequent to a cerebral vascular accident can and should be encouraged to learn to cook for her husband with her left hand and that this rather than electroshock is necessary and sufficient to relieve her depression. It is common sense to point out that the gruff obnoxious truck driver who is severely ill, unkempt, and demanding, needs help in understanding that he produces the rejection he feels from the medical staff. It is common sense to reassure the postoperative patient that the nurses' and doctors' desire to help him is measured best by what they do and not by the 5-second delay between his pressing a call button and the arrival of the nurse. The daily round of needs and fears that is met in a medical setting is an opportunity that we seize to simply and eloquently impress on the students the values of the psychiatric knowledge embodied in our goals.

At Temple relatively little time is devoted to demonstration of the gross patterns of psychosis. Students are not assigned to clerkships in inpatient locked ward settings. We appreciate the fact that living with schizophrenia is important to the finer appreciation of degrees of illness, but we believe that students will recognize the grossly

ill whether suffering from psychosis or malignant neoplasia. In each case they will quickly take the appropriate action of referral and hospitalization. What we do feel significant for the student to learn is the orientation that a woman coming to him complaining of right upper quadrant pain and suggesting that the onset is after fatty foods is reflecting the fact that her daughter is making arrangements to leave home; and that her husband, always suspicious, and faced with the potential absence of the daughter as an intermediary, has become even more irritable so that the patient views sickness and the threat of operation as a means of relieving the pressure at home. We all know it is not enough merely to teach facts; they must be facts which stand in a recognizable relation to each other so they can be understood by the student.

More important than facts are the attitudes which are necessary to learning. We use our own curricular time as much as possible, outside of the time required to impart facts and concepts, to give students the opportunity to hear about, watch, and discuss treatment in order to define attitudes, role, and technique. Watching the treatment of patients by skilled clinicians through a two-way mirror is especially effective, since the teacher is often able to convey more than he would be able to formalize. When two skilled clinicians cooperate in the teaching, they are able to point out the effects of the technique and personality of the other in a meaningful way. This approach is an antidote to the competitive scientism to which many departments of psychiatry are urged by their more mechanistic brother departments. It is important that some of the first psychiatric patients students see be those who have been helped by psychotherapy and are of a lower social class so that there is no confusion about their being dilettantes. It is important that they were severely ill and that they can talk about their illness and their treatment. It is important that they not be in a positive transference, exhibiting fatuous adulation of their therapist. It is important that they be intelligent and able to evaluate

critically and realistically both doctor and method.

We try to make explicit the defenses that a physician must have to treat patients psychotherapeutically. We point out, for example, that the first injunction in psychotherapy—to remain quiet and listen to what the patient says—is necessary to overcome our defense of talking to block our recognition of fearful, painful, or seductive messages from the patient. A psychiatrist's refusal to "converse" with a patient, his inquiry into sensitive areas of the human psyche, require not personal fortitude but learning the defenses of mature practitioners by imitation and identification. He must learn to be proof against his voyeuristic impulses just as the surgeon must have resolved his aggressive impulses. We point out that the students must take time to "scan" the field of the patient's intra- and interpersonal relations. Thus, the student must understand and have insight into the patient's dynamics, yet he should use and value the techniques of supportive psychotherapy, problem solving, persuasion, exhortation, advice, and so on. Since insight into dynamics must start with the physician's knowledge of himself, we emphasize the use to which he must put his own personality.

Students are quick to recognize the effect of their classmates' personalities in the treatment of patients in the medical clinic. As we discuss this openly they accept as a group that some of them are naturally sympathetic, naturally aggressive, or naturally distant, but they ask, "What good does it do us to know we are this way?" We explain that

we want them to be familiar with their own characteristic patterns of response to patients, so they can use this knowledge in evaluation and management of patients. Thus, they can be clinically sympathetic, clinically suspicious, and clinically distant. Their awareness of their own patterns allows them to be used as a constant in the evaluation of the doctor-patient relationships. We are in effect telling them something very reassuring which they need: "Be yourself; it will help you with your understanding of patients." As much as a student can afford to be himself and recognize himself, that much can he use his personality in the treatment of patients. As he broadens his knowledge of his profession and of himself, he adds depth and breadth to what he brings to his patients. As the student becomes less afraid of what he is and of what he can do, he can undertake wider excursions into the realm of the human needs of his patients.

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MEDICAL EDUCATION FORUM

Editorial

THE STATES TAKE ACTION

From time to time we have lamented the lack of Federal action in making funds available for the support of the expansion of medical education. The latest disappointment was the Hill-Jones Report, which for medical education was pie in the sky with very little meat on the table. Perhaps the fact that the states are, on their own momentum, attacking the problems of expanding facilities for medical education will rouse the slumbering Federal giant.

Happily, communications from our correspondents indicate that there is substantial progress across the country, although all is quiet along the Potomac.

The Western states, under the stimulus of the Western Interstate Commission for Higher Education, have been reviewing their needs. It is evident that the regional compacts for student exchange at a cost stipend have made a real contribution but are not the answer to the problems of the West. New medical schools must be established, and the West is on the move. New Mexico has made the necessary administrative decision for the establishment of a two-year school at Albuquerque. A grant of one million dollars from the W. K. Kellogg Foundation has been made available and the search for a dean is in progress. Arizona has initiated a formal study to determine the appropriate location of a medical school. Dean Joseph Volker of the University of Alabama Medical Center is directing the review, under the approval of the Regents for Higher Education. We hope that Arizona will move promptly to a full-fledged medical center. Idaho has requested a survey by representatives of the Liaison Committee for Medical Education to determine the need for a medical school. A special study in California has recommended that a new medical school with state support should be established in the San Diego area. We understand that this has been endorsed by the governor. There should be no difficulty in recruiting faculty for such a pleasant location. Texas has decided to establish a new medical school at San Antonio, and now comments are heard on the possibility of a two-year program at Austin.

The Southern states, through the Southern Regional Educational Board, have been studying their future needs for more medical schools and for more qualified applicants. The continuing rapid growth of Florida may be a factor in the development of the next southern medical school. Dean George Harrell and Dean William Willard have been active in this study, and the A.A.M.C. through Lee Powers has supplied invaluable resource material.

Connecticut is considering the establishment of a four-year medical school, which would probably be in association with the Hartford Hospital.

A study by the state of Ohio has recommended three new medical schools, one of which would be located in Toledo.

A faculty committee at Michigan State is studying the establishment of a medical school.

It is gratifying that the Liaison Committee on Medical Education is playing an important consultative role in these developments.

It is heartening to see the states moving ahead with plans and not just more reports. Medical educators have been accused of crying "wolf" about the need for new medical schools. We are glad to note that general educators, elected officials, and the public have sighted a very real wolf, indeed, and have joined the chorus!

JOHN Z. BOWERS, M.D.

Datagrams*

MEDICAL COLLEGE ADMISSION TEST DATA FOR 1959-60 APPLICANTS

Applicants to United States medical schools for 1959-60 increased in average Science Achievement scores from the low set by the 1957-58 group. Although scores on the Quantitative section were down slightly from the high achieved by 1958-59 applicants, the 1959-60 applicants were the first to surpass the 1951-52 standardization group in over-all MCAT performance. Table 1 presents the data from 1952-53 to present, 1951-52 being the year MCAT scores were standardized with means of 500.

Over this eight-year period, fluctuations in MCAT scores of accepted applicants have not been striking, indicating that admissions committees continue by and large to select the best of the applicants who come to them and have, therefore, been able to maintain the intellectual ability of their entering classes at a relatively high level. Figure 1 illus-

TABLE 1
MEAN MCAT SCORES OF ACCEPTED AND REJECTED
APPLICANTS DURING THE PAST EIGHT YEARS

YEAR	ACCEPTED APPLICANTS				REJECTED APPLICANTS				TOTAL APPLICANTS			
	VA	QA	MS	Sci	VA	QA	MS	Sci	VA	QA	MS	Sci
1952-53.....	522	526	519	525	465	459	467	457	493	492	493	491
1953-54.....	519	525	524	530	461	457	472	460	494	495	501	499
1954-55.....	517	521	530	533	457	455	473	459	491	493	506	501
1955-56.....	524	528	527	522	466	459	476	454	497	496	503	490
1956-57.....	525	525	526	519	463	458	473	445	496	494	502	485
1957-58.....	528	517	527	516	467	452	472	442	500	487	502	482
1958-59.....	527	532	520	523	461	456	467	441	499	499	497	488
1959-60.....	529	527	527	527	470	455	473	449	504	497	505	494

trates graphically the proportion of students accepted and rejected at the various levels of ability for the 1959-60 group. The same data are presented as an abbreviated expectancy chart in Table 2.

Last month's datagram noted a decrease in applicant activity for the third consecutive year. Relating applicant activity to MCAT performance leads to the interesting observation that in those recent years when activity has been lowest the Science Achievement scores have been highest. While not as significant, the same holds true for scores on the Modern Society subtest. On the other hand, no consistent relationships are apparent between the degree of applicant activity and average Verbal and Quantitative Ability scores. Although these relationships are undoubtedly the result of the interaction of a number of factors, one in particular warrants discussion. The most recent years in which Science Achievement averages were lowest was the period during which the science faculties and

* Submitted by the Basic Research Division of the AAMC, 2530 Ridge Avenue, Evanston, Illinois. Source of information will be furnished on request.

facilities of the undergraduate colleges were probably being overburdened by the influx of Korean War veterans. Although the size of the undergraduate population has continued to increase, it is quite likely that the concern of the colleges for their science programs since Sputnik I has been responsible for the reversal of trend and the observed increase for the last two years in the average Science Achievement scores.

Does this mean that the medical schools will be better off quality-wise if applicant activity continues to decline? *Emphatically no!* The fact remains that any admissions committee faced with the problem of selecting quality students will be in a more favorable position to obtain the desired class if they have the opportunity to screen larger numbers of applicants. This will be especially true in years when, for whatever reasons, the over-all ability or achievement levels in the available applicant pool are lower.

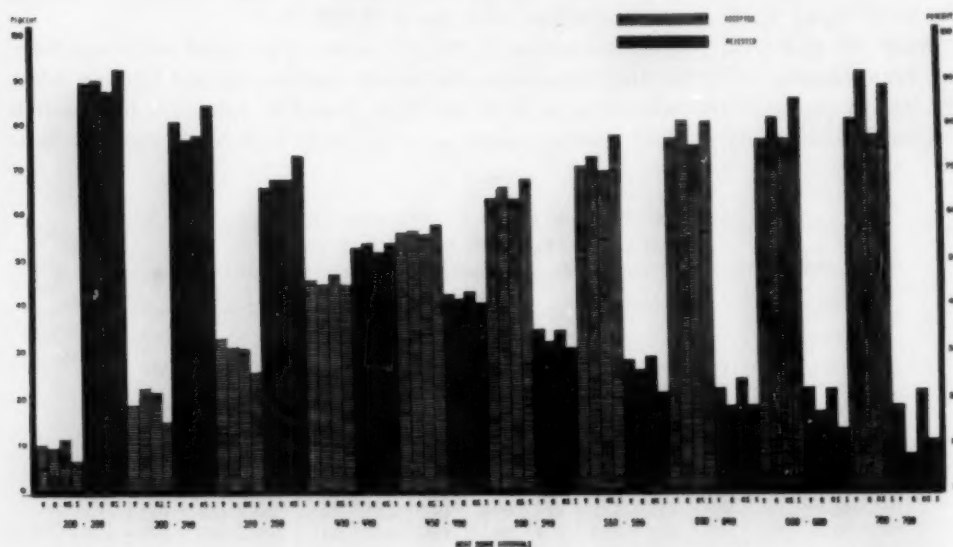


FIG. 1.—Comparison of percentage of applicants accepted and rejected at various levels of ability as measured by the four subtests of the Medical College Admission Test.

TABLE 2
EXPECTANCY CHART FOR ACCEPTANCE TO UNITED STATES MEDICAL
SCHOOLS BASED ON MCAT SCORES OF 1959-60 APPLICANTS

If MCAT SCORE Is BETWEEN:	CHANCES IN 100 OF BEING ACCEPTED ARE:				CHANCES IN 100 OF BEING REJECTED ARE:			
	VA	QA	MS	Sci	VA	QA	MS	Sci
700 and 799.....	82	92	78	89	18	8	22	11
600 and 699.....	78	82	76	83	22	18	24	17
500 and 599.....	68	70	67	73	32	30	33	27
400 and 499.....	53	52	53	52	47	48	47	48
300 and 399.....	29	29	29	22	71	71	71	78
200 and 299.....	10	9	12	7	90	91	88	93

Probably more important as a major problem facing United States medical schools in their bid for talent is the problem of insuring that those quality students who each year do express an interest in a career in medicine are not turned away due to problems of distribution among the schools. Every year, schools in the more favorable selection position turn down high-ability applicants, while other schools are forced to seat their first-year classes with at least some mediocre or poor students. What happens to these high-ability rejected applicants and the question of how to help them secure an opportunity for a career in medicine are currently subjects of study by the AAMC's Basic Research Division in conjunction with members of the Continuing Group on Student Affairs. The establishment of a pool of available applicants, set up on a voluntary basis, could do much to distribute among the various schools talent that would otherwise be lost.

Address

LIVE YOUR LIFE—ALL OF IT*

HERMAN E. HILLEBOE, M.D.†

Soon you will be "practicing medicine." That phrase means every bit of what it says. You are, and always will be, as long as you are capable, "practicing medicine" by learning from each patient and each colleague things that you either never knew before or were not prepared to accept as new knowledge.

If you are applying the knowledge you have but recently learned—and no more—in the year 1965, believe me, you will not be practicing medicine. You will have become a technician, performing by rote the skills you learned four to eight years before. Eight years, measured by the blinding pace of modern medical discovery, is like an aeon.

Your greatest opportunities to gain new skill and new insight will come at those moments when you will be forced to admit to yourself: "I am not sure whether or not what I am doing is right." At this point, you will reach a fork in the road of medicine—there will be many such forks—at which you can turn up the road to Learningville or continue on the comfortable highway leading to Stagnationtown.

You should know, however, that the highway to Stagnationtown is not as well paved as it once was. There was a day when a physician might rely confidently upon his stethoscope, his black bag, and the M.D. after his name. He could stop growing professionally and get along. That day has passed. You are going to be practicing medicine in an era of changing social values. The time has come when a great mass of middle-income Americans has some fairly clear ideas about the difference between good and poor medical practice. Our mass communications media are showering the public with all kinds of information—some sound and some not—but all the same, a lot of facts are being exposed to the public gaze.

This means that you are going to be judged less and less by the fact that you are a doctor of medicine and more and more by the brand of medicine you elect to practice. You will run into patients who will ask you whether they should not perhaps have a coronary checkup or a Papanicolaou smear for cancer; your professional vanity may be momentarily wounded by seemingly impertinent and oftentimes erroneous pieces of medical second-guesswork. Don't condemn this habit; use it. When a patient makes a suggestion that comes from somewhere in left field, make this your cue to set the patient straight. An opportunity such as this is tailor-made for some useful health education. When you do this, discipline yourself to sound like a human being and not like one of those stiff-backed characters that parade as physicians on television commercials.

Maybe you are asking yourself now why you should be told to spend time doing preventive work when you hope to be up to your ears dealing with patients who are really sick. You'll

* Presented as the Commencement Address before the Albany Medical College Graduating Class, May 31, 1960, in Albany, New York.

† Commissioner, New York State Department of Health.

say to yourself: "Suppose we worry about next year's pain under the sternum when it comes." Well, if you persist in thinking in these terms, you will have swallowed some bait with a very sharp hook in it. The hook is this: The professional tells people what they must have; the hack only gives people what they want. That—if you'll pardon a digression—is one of the things that is gumming up our national way of life today. Not enough professional people have the simple courage to tell the public what it ought to have, and too many merely hand out what the public thinks it needs. Greece and Rome never became great civilizations with that kind of behavior.

There is another reason, too, why you ought to be a preventive practitioner, and it has to do very personally with every one of you. You will be practicing in an age in which there is going to be, barring some incredible turnabouts in national values, a chronic shortage of physicians. The population in the U.S. is expected to reach 235 million by 1975. If current plans are not drastically revised—and we have been given no such assurance—not enough physicians will be graduating in the next 15 years to maintain even the present inadequate ratio of 133 M.D.'s per 100,000 population. To add to the shortage, more physicians than ever before are going into research, teaching, and nonclinical fields. Whereas this trend may insure more rapid medical progress, it will equally insure that fewer physicians will be fully engaged in caring for patients. If all this were not enough to intensify the shortage of physician's services, let me remind you of one more fact: This is an age in which we have been able to maintain life among awesome numbers of persons with chronic illnesses—17 million, I believe, is the 1958 estimate of the National Health Survey. In addition, another large segment of the population, those born with congenital defects, are being kept alive. Add all these factors together—and throw in the observation that prosperity has kept the birth rate humming—and it becomes painfully clear that you are due to have a mammoth logjam of patients elbowing their way into your offices in the years ahead.

Are you beginning to feel the deadweight of demands that are going to be made upon your time? Good. Then perhaps you are ready to listen closely for the next few minutes when I suggest how you can save yourself from a round-the-clock type of humdrum practice that can break your health and crush your spirit.

What I will be saying to you in these few minutes will boil down simply to this: If you wish to get real enjoyment out of being a physician—I mean enjoyment, not just satisfaction,—*then keep people from becoming sick.*

Aim at getting your patients to visit you when they are well. And when you've got a patient in your office—no matter why he happens to be there—seize the opportunity to find out something about his personal habits and not just his illness. Observe his personality. Notice his reactions to you and to what you say. If you do these things you may be in a position to spot what kind of trouble he is headed for as well as what kind he is already in. After all, even a cow can tell when it has a bellyache; it takes a perceptive professional to predict an impending medical disaster and then take the steps to head it off.

This is the spirit and the challenge of modern medical practice. Never before has it been so portentous. This is late 20th-century medicine, and I tell you that it will be a rewarding brand of medicine for those who catch its spirit. If you will combine preventive medicine with routine medical practice—whether you're a generalist or a specialist, you can keep on top of your job.

I'd like to talk about the ideas prevention stands for and describe preventive medicine

in action. To begin with, I should first try to explain the difference between running a practice and letting a practice run you.

You are running a practice when you suggest to a man whose second degree burn you are dressing that he should get a complete physical examination while he is there; or when you insist upon a chest x-ray film for the wife and children of a man whom you have just found to have active tuberculosis; or when you agree to serve as medical advisor to your community's Heart Assembly; or when you take part in a local screening program for diabetes; or when you keep your office waiting room stocked with a generous supply of health pamphlets. You are truly running a practice when you attend a postgraduate course in antibiotic therapy; when you insist upon giving a 37-year-old housewife a "Pap" smear test for uterine cancer detection; when you take an active interest in the standards of care offered by your community's hospitals; or when, during a visit to a patient's home, you point out to a housewife that the scatter rug in her hall may one day cost someone in her family a broken leg. You are running a practice when you read the signs of approaching alcoholism or mental illness in a young father, and then take steps to help him avoid such trouble. When you take any action that will ultimately reduce the number of patients who come to you belatedly in fear and in pain, you are in control of your practice.

To the extent that you do these and similar things, you are running a practice. To the extent that you fail to do them, your practice is running you. And run you it will if you don't watch out.

Should you, by preference or by lazy default, become a kind of medical traffic cop, no one will deter you. For this, all you need do is to avoid taking histories and doing physical examinations; just listen to a few symptoms and then prescribe from the latest advertising brochure that came across your desk. But never permit yourself the smug delusion that this 'traffic cop' function is the highest mission of medical practice. Heaven knows, enough of this kind of business will pour into your office, if you have a pleasant personality and good public relations; but there is no earthly reason why you can't take steps to reduce this kind of traffic. There will be no glut of occasions when you will need to tell a patient that he should see a specialist such as a cardiologist or a neurologist; at these times you can feel satisfaction that you are competent and courageous enough to send your own patient to another person for help. The final measure of your competence will not be how many patients with advanced disease you can correctly diagnose but the number whom you helped simply because you detected early that the chemistry of life was running thin in their flesh. Those who will burden your troubled mind at night are the ones who found out from you, too late, how they might have averted, postponed, or minimized their disease or disability.

Now make no mistake: The pressures generated by our way of life will thrust heavily against your better judgment. Practicing preventive medicine rather than symptomatic medicine will separate the men from the boys. Enormous rewards (of sorts) are dangled before those who would practice symptomatic medicine. The physician who takes the lure will see his 35 or 40 patients in an afternoon and drive home in a new "Caddy." The physician who doesn't will see fifteen patients in the same period and make it home in last year's "Olds." Try to remember, will you, that both men will get home. A physician's performance is measured by brainpower in his office, not by horsepower under the hood of his car.

The drift into the habit of slipshod practice is insidious, because some of your patients will not be even slightly aware of the difference between good and bad medicine. But you

will know; so, too, will your peers in the county medical society; and so, too, will many of your patients. And it will be you and those you respect who determine, finally, whether the person deep inside you is a medical scientist with whom to trust one's health and life, or merely a repetitious bore who keeps talking to his patients about next year's vacation. Have you ever had to spend an hour with a bore? It's like spending all day sitting in a hard-backed chair in a musty, windowless room. Practice symptomatic medicine if you want to spend a lifetime in such a situation, and be sure you develop a thick skin. You'll need it.

Let me make it clear that I am not opposed to physicians earning incomes that enable them to aspire to modern social existence. The qualified physician of today averages 30 years of age and represents a cash investment, since high school, of \$25,000-\$30,000. He has spent 8-10 years working 70-80 hours a week—with no time and a half for overtime—and received little or no pay for his effort. It is nonsense to suppose that this rigorous training should not be considered when the question of remuneration comes up. The physician should be well paid for what he does.

While on this subject, there are ways and ways of being remunerated. Some are sound, others have mixed values, and a few are undiluted mischief to the cause of good medical care. An increasing number of persons today seem quietly determined to have some kind of plan that provides comprehensive medical care. They are already largely convinced that the only way to pay for medical care is through some system which amortizes the cost in regular payments. And finally, the latest thing they have begun to realize is that any payment system which fails to stimulate the physician's interest in the patient's total health is really a threat to that patient's health.

The Health Information Foundation has determined by sampling surveys in the U.S. that the rates for appendectomies were eleven per 1,000 among persons who were insured compared to only five per 1,000 among the uninsured. The head of the American College of Surgeons was quoted several months ago in the *New York Times* as saying that about half the surgical procedures being performed today are, by the best standards of surgical practice, unnecessary. Prepaid health insurance, I think you will agree, should not be designed so that it places a premium upon "doing business" and a handicap upon practicing a profession. If anything is calculated to destroy the physician-patient relationship, I think it would be just that.

This has become a tight little world we are living in today, and the simple business of being able to look one another squarely in the eye has suddenly grown to become enormously important.

The public is also becoming aware that some way must be found to insure a high caliber of medical service for the majority and not a minority of those in need of care. I'm sure you know that there are medical care plans today in which the qualifications of member physicians are carefully reviewed by their own colleagues. You also know that some medical plans remunerate physicians quite satisfactorily on a basis of other than fee-for-service. Keep your minds open to the variety of ways of practicing good medicine. We have some experimenting to do yet. On the other hand, I do not see why we should have to keep on calling successfully operating systems "experiments" after they have been running smoothly for a number of years. When something succeeds it is no longer an experiment, our cautious profession notwithstanding.

We are also beginning to see physicians of various specialties banding together to pool their skills in an orderly integration of their specialties. Group practice, it is called. Perhaps one day our "Doctor of the Year" award will go to a physician who has organized a group

practice in an area where doctors were badly needed. Such a physician, whose enterprise and imagination have brought the advantages of modern medicine to a group of patients, deserves honor. Before too long we should strive to find ways of honoring our pioneers while they are still living, breathing pioneers and not merely symbols of a glorious but by-gone era.

The age of the country doctor with his little black bag was indeed a glorious one. It is passing from our American scene, but I see no real reason why we should mourn its passing. A generation of dedicated physicians has worked diligently to create something better, and they deserve recognition of that accomplishment. But more than that, the modern medicine they have handed on is both an opportunity and a challenge to each one of you.

The healing touch of the latter half of the 20th century will require many hands and many minds working together, planning together, dreaming together. In this new scheme we shall have need, more than ever, for the individual mind and spirit. The sturdiest form of individualism is not created by the mere circumstance which forces a physician to go it alone; it is created by the circumstances which require a physician to work closely with his colleagues without losing the integrity of his own convictions. Set this vision at the pinnacle of your value pyramid, and you will already have gone far toward winning the ultimate victory of this era of medicine.

I have just a few more thoughts to drop among you, and then I will fold my mortar board and slip it away. The first thought I can put very simply: Live a little. Life is so short, and it doesn't get away from us by decades, it slips away right now, this moment. There is really no tomorrow. Tomorrow is only a useful abstraction for planners; by its very definition it does not exist. Never confuse living life with your plans for tomorrow. By all means, make your plans; but while you're doing it don't neglect to plan to live each day right up to the hilt.

If you would live fully, be imaginative. Someone once said that asking a person to be imaginative is like asking him to grow taller. I do not believe this observation is correct. Imagination can be developed. To do it, you as physicians will have to cast your bread on nonclinical waters. The kind of physician we shall need from now on will have to be more than a protoplasmic technician. He will have to be a person-in-the-round, who keeps dipping his curiosity into anything that suits his fancy—human relations, government, economics, art, music, literature. He will have to taste a variety of fruits in the garden of life. In short, he will have to explore the whole world of human experience.

Should he neglect to do this exploring, he may one day look up from a sutured wound of the hand or a puzzling mass in the belly and find his life and his calling very flat wine indeed. If you would develop new ideas and insights about medicine, you must first look beyond the confining frontiers of your profession. Imagination is a going away and a coming back kind of experience that sharpens the mind and refreshes the spirit. You will have great need in medicine of these two benefits.

Sir Heneage Ogilvie, the noted British surgeon and senior editor of *The Practitioner*, had a pithy observation to make in this regard. He said: "Interludes in practice give the practitioner the opportunity to appreciate the value of intermittent periods of idleness when the mind can remain fallow, allowing it to sort and reassess its recently acquired treasures and to readjust its spiritual values." He goes on to quote the aphorism that neither the genuinely idle person nor the perpetually busy one is likely to get anywhere. All this adds up to the importance of leisure.

You will need something else too. Verdi calls it *la forza del destino*—the power of faith.

Have faith in the dreams your awakened imagination offers you. Most human progress has come about through the majority of one. Darwin, Pasteur, Flemming, Galileo—all were majorities of one. The world rather prefers to forget that the institutions and ideas so blandly accepted today sprang originally from the fountainhead of the single mind with the single purpose. Group courage is a common commodity; courage within a group an extremely rare one. All of you will, at some time or other, be called upon to display the latter variety. When you are, I hope you will regard it as an opportunity for personal growth rather than an unlucky stroke of fate.

Develop within yourself the habit of creative thought and action. You were exposed to some wonderful examples among your teachers and researchers during medical school. Don't let your need to develop clinical skills smother your creative endeavors. Take the initiative during your internships, your residencies—these can be some of your most productive years. There is a strong correlation between age and creativity. In listing important achievements in various fields, Lehman found that the peak of productivity in medicine was between the ages of 35 and 39 years. George Moore has pointed out that, for maximum creativity, the habit of imaginative thinking should be established as early as possible. You will be surprised as the habit takes hold at the parallel growth in your clinical judgment, your teaching ability, and your zest for life.

Imagination, faith, creativity—these are the elements that comprise the set and mould of a true professional. Anyone may lay claim, because of the veneer of his academic training, to being a member of a profession; but the professionally trained person deludes himself unless the solid grain of his being entitles him to the posture.

The profession of medicine is a way of life as well as a way of making a living. But when making the living begins to take precedence over the way of life, that man or woman—poor unfortunate—is no longer a professional, except by the sorry substitute of his or her social pretense.

Speaking about a way of life seems to frighten people these days. They associate it with some Spartan-like existence that mutually excludes pleasure and satisfaction. They are assuredly mistaken. I am speaking precisely about pleasure and satisfaction when I speak about a way of life, because I believe it is the only way for you to achieve all the things you are striving for.

Since, I hope, you are determined to make the profession of medicine your way of life, learn to love that profession. Love—that is another word people play tiddly-winks with. A child will tell you what love is all about in a few uncomplicated words. He will say something like this: "It's what I feel when my puppy lays his wet old nose on my neck." Very few adults can get to the heart of the matter quite so well. The humorist, James Thurber, comes close to the mark when he tells us of a middle-aged woman with five or six children. With simple eloquence she described love as, "Something you've been through with somebody."

This makes it very simple: Love is something you *live* with someone else. Make medicine that; make it something you live with all kinds of people—with patients who are sullen, hostile, profane, grateful, cheerful, despairing, indomitable; with colleagues who are stubborn, petulant, adamant, understanding, domineering, dedicated. Live your life—all of it—with the geniuses and the fools of the human adventure you will encounter. Then, when you have finished your task and some friendly philosopher asks you what you mean by "loving medicine" you can proudly say to him, "It's something I went through with a lot of human beings." Thank you.

Reprint

THE DEAN'S DILEMMA: LEADERSHIP OF EQUALS*

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At Parris Island, South Carolina, on April 8, 1956, a Marine drill instructor named S/Sgt. Matthew C. McKeon barked an order to a platoon of recruits, and they promptly marched into water over their heads. Since some of them could not swim, they drowned; and a few of them at least must have reflected on that possibility ahead of time. But the published reports of the ensuing investigation failed to reveal that any of the recruits seriously considered not obeying Sgt. McKeon's marching orders.

That Parris Island platoon is probably the limiting case of "vertical administration," in which a maximum of authority has been "delegated upward" to the issuers of orders by those who subsequently receive them. Somewhere near the other end of the long and colorful spectrum of administration, you will find an academic dean working with a faculty. Here administration is horizontal in the extreme. The members of the platoon have refrained from delegating much of their hard-won authority to the sergeant; they expect him neither to drill nor to instruct. In the academic world, the premium is not on collective orderliness, as at Parris Island, but on cheerful orneriness, as at Harvard.

Examples can doubtless be found of even more extreme forms of horizontalness in administration. The resistance of physicians to the striving for conformity that is supposed to be the hallmark of modern large-scale organization probably exceeds, by some quantitative measure that yet eludes the social scientist, that of college and university professors. But an academic faculty certainly is irregular enough to invalidate much of the generalizing from personal experience in hierarchical organizations which serves us as general theory in the field of public administration.

My assignment here is to set down some personal observations on the role of deans as "middle management" in the academic world. The word "management," with its heavy connotative freight of efficiency and good order, applies dubiously, if at all, to academic administration. But there is no question about the other word. The dean is by definition in the middle. The position does have its compensations: the academic dean has more contact with the substance of education than the president and trustees and affects the allocation of more resources than the fulltime teachers and scholars.

EXECUTIVE IN A LEGISLATIVE SITUATION

The mythology about deans is clear enough. On every campus a whole *genre* of humor on the subject is transmitted in song and story from generation to generation. The newly-appointed dean can confidently expect several dozen people to tell him, ha, ha, that the

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definition of a dean is a mouse trying to act like a rat—or, in the purer corners of the humanities division, as a rat. Within a college or university faculty, the accepted hierarchy of values is best expressed by the description of a dean as not intelligent enough to be a professor and too intelligent to be a college president.

Thus in faculty folklore, administration is the lowest form of subprofessional endeavor on the campus. Naturally it lacks the intellectual quality of teaching and book-writing, but it lacks, too, the sense of artisanry (the "thingness," a philosophy professor might say) that lends a certain dignity to the work of janitors, campus policemen, the food service, and the buildings-and-grounds crews. The administrators create nothing, initiate nothing; they exist to serve the faculty—and since they keep forgetting that this is their primary role they must be periodically reminded of it on public occasions by exquisitely worded shafts of faculty wit.

This mythology is of course an indispensable element in the dynamics of a college or university. It explains the otherwise inexplicable: that administrators by and large get higher salaries, ampler office space, larger travel budgets and more secretarial help than the other members of the academic family. Since teaching and scholarship are the purpose of the academic enterprise, how can the favored treatment of administrators be justified except as the distressingly materialistic inducements required to make sure that somebody, almost anybody, will step forward to perform the paper-pushing tasks whose marginality to the real business of education is expressed in the pejorative term "overhead"?

The difficulty most of us have in understanding the nature of academic administration is due in part to the general tendency to describe it with words and concepts borrowed from hierarchical structures. But these words describe poorly the actual workings of a faculty. For academic administration is in its important essentials a legislative process. The faculty, like a body of legislators, is plural; if a chart were to be drawn, you would need a roll of paper long enough to spread all faculty members out on it horizontally. The dean is at best a majority leader with access to significant forms of patronage; on some issues, he may have to settle for acting as leader of the minority.

The essential characteristic of academic life is thus a fierce conviction that each of its participants is in important senses free and equal, empowered to decide within wide limits both the direction of his own scholarship and the composition of his own teaching load. Some of the members, to be sure, are more equal than others. But power does not ride with position to the extent that it would in a government bureau or corporate enterprise. The influence of the individual faculty member is paradoxically compounded of long tenure with a single institution plus the known ability to move elsewhere at the drop of a hat.

ORGANIZING UN-ORGANIZATION MEN

To illuminate the stage on which the dean (and to some extent the department chairman, too) must play his peculiar role, it may be useful to compare the dynamics of hierarchical bureaucracies with what happens in a faculty.

If in a hierarchical organization you place on the table a new function which the organization must perform, you can count on a more or less polite struggle developing as to who will handle it. The success of each unit chief is measured by the progressive enlargement of his unit's responsibilities. Fully two decades before Parkinson's law was published, Chester Barnard argued that an organization's survival and growth is the only valid criterion by which the organization can be judged—or, indeed, can judge itself. By aggrandiz-

ing itself, each unit of a hierarchical organization helps aggrandize the organization as a whole: Charles E. Wilson was in the main intellectual stream when, on the assumption that General Motors is a part of the United States, he implied in his famous "vice versa" that what was good for the part was good for the whole.

Not so, or at least not necessarily so, in the administration of an academic faculty. Place a new organizational function on the table at a faculty meeting and you are well on the way to losing your audience entirely. The dynamics of a faculty are centrifugal, not centripetal.

The reason is not far to seek. A scholar-teacher's career does not depend *primarily* on his position within the power structure of his own institution, it depends on his reputation in his own field of specialization. The research chemist will get to the top of his profession through chemical research, not by sitting on university committees to work out a freshman general-education program in the arts and sciences. It is more relevant to an anthropologist's career for him to fathom the tribal symbolism of a remote village than to study the equally curious mythology of his own college. The man who is trying to decide whether Shakespeare was really a reactionary in the midst of the Protestant Reformation can hardly be bothered to spend an evening a week representing an abstraction called "the humanities" on a universitywide committee on long-range building plans.

The professor's primary life is therefore lived in his professional field. The basis for his self-esteem, a mirror of the esteem of others he admires, comes largely from outside the formal structure that hires and pays—but often cannot fire—him. The fact that his students, not to speak of janitors and townspeople, regard him as a savant and call him "doctor" to prove it—this he takes for granted. It is the friendship and professional regard of his colleagues in his own department and in similar departments across the nation that he covets most—because it is hardest to come by. For it is they who have some reason for an opinion: they can be presumed to see his journal articles and read his books.

Even the professor's position inside his own academic structure depends ultimately on his regional or national reputation in his professional field. He will be esteemed the more if his colleagues and his administrative controllers, as they move about at educational conventions and intellectual soirees, find him mentioned with approval and admiration; and by the same token, if he seems unknown in his own field or is regarded by his functional peers as superficial or passé, he will find himself being passed over by the people who regulate travel funds, control faculty "loads," decide who teaches the 8 a.m. classes, and determine which faculty offices will be supplied with new bookcases.

When it comes to salary, the professor's bargaining power on the inside is, for better or worse, directly correlated with his marketability on the outside. Nothing is so helpful to a dean trying to get a raise for a professor as his ability to say the institution will lose the professor if an outside offer is not matched. One or two good competitive offers a year, carefully leaked to the rumor network in time to influence next year's academic budget, will keep the salary escalator working satisfactorily, without all the bother of actually packing up and moving to another institution.

The dependence of professors on outside rather than internal reputation also helps to explain another fact which both baffles and pleases the new academic administrator. In a hierarchical organization, there is normally a difficult problem of internal communication because people are wary and over-polite about each other. People in bureaucracies know instinctively that "the less I say about him, the less he is likely to say about me." In a government agency or business firm, blocks to internal communication are nearly always a major man-

agement problem. Not so in an academic faculty. From the very moment he assumes office, the dean will find a disarming and sometimes jarring frankness on the parts of those faculty members who are secure in their outside positions.

LEADER IN SEARCH OF CONSENSUS

The external reputé of individuals is only half of faculty dynamics. It is the controlling factor in the individual's position as a claimant on the institution's resources and its administrators' goodwill. But it does not necessarily determine the individual professor's position in that oligarchical power structure for which "faculty democracy" is the favored euphemism.

In spite of the onrushing hordes of "overhead" administrators, who in some institutions now take up more than 50 per cent of the salary budget, every faculty manages to retain for itself some real power to make important decisions, or at least to veto them. The list might typically include promotions (especially as to academic rank), research leaves and other services to the faculty, revisions of the curriculum, approval of degrees including the honorary variety, and legislation about the conditions of academic freedom. In the structure of influence to handle such matters as these a professor's national distinction as scholar or his widespread reputé as a lively teacher is by no means the major portion of his segmented ticket of admission to the elite. Personal effectiveness and skill in negotiation are perhaps the most important factors. But seniority and long tenure also count for much.

As in other legislative processes, the rule of seniority is combined with a periodic popularity contest to select the elite corps of perennial surrogates for the masses (except the "majority leader," who nonetheless is normally appointed by and with the advice and consent of the faculty). In order to qualify for continuing leadership, the members of the elite have to be sharp, tough, and honest—the kind of people you would expect to survive in legislative leadership, but not necessarily the kinds of persons who win popularity contests for executive roles in the world of national or state politics.

Faculty voting is often by proportional representation, which is subject here as elsewhere to the abuses of bloc voting and over-representation of intransigent minority views. The resulting "aristocracy of tenure" manages the elective committees, and the same opinion-leaders are naturally selected by the administration to serve in appointive posts as conduits to the faculty at large. As in other segments of our highly-organized society, the leaders who serve on these committees are expected to complain vigorously about the proliferation of committees and the terrible administrative burden they have to carry.

It is doctrine in public administration that a committee can make collective decisions only on matters that do not contravene the vital interests of any member. In academic administration, too, the normal posture of a committee member is one of complaisant apathy until the vital interest of his department or discipline is at stake; on most matters, professorial courtesy is as strong a tradition in the monthly faculty meeting as senatorial courtesy is on Capitol Hill. Thus it is that the only curriculum revisions that do not breeze through the faculty screens erected to "maintain standards" are those which seem to raise jurisdictional issues: the eyebrows of the sleepest economist will twitch, for example, when the engineering school brings up "Economics for Engineers." But generally no questions are asked; the asker would expose his next proposal to withering cross-fire if he identified himself as a carping critic in fields outside his own.

The approval of curriculum through faculty committees is of course dubious procedure

in any case. Every academic dean soon learns the standard ploy, which is to pour new wine into old bottles. If a new faculty member wants to teach a new course, the old-timers in almost any established institution can, with a little research, unearth an approved course number and description which can serve as a suitable vessel for the new material.

Experienced faculty members practice the familiar arts of legislation, notably log-rolling: "you approve the promotion of my colleague and I'll approve the promotion of yours." They sometimes tend toward policies strikingly similar to those of craft unions. When faculty groups discuss their own salaries, which they do frequently and with well-justified anguish, the net result is usually not to make proposals for increasing the salaries of the profoundest scholars, the most aspiring teachers, and the most externally marketable "stars," but to direct their efforts toward raising the minimum wage for each professorial grade. The unhappy result is to skew the incentive system in a manner that hardly persuades the good teachers to stay and the weak ones to look for some other line of work.

The term "faculty democracy" implies a system of voting by majority rule. But a better analogy is the Javanese tradition of gotong-rojong. In Java's villages, the leaders talk things out until there is agreement on a course of action. (In Indonesian national politics, the spirit of gotong-rojong was reflected in President Sukarno's classic reply to a press-conference question as to why he did not form a government with the three non-Communist parties, leaving out the Communists, which would still leave him an overwhelming majority: "Have you ever seen a three-legged horse?" he said.) In our own culture the jury system or the Quaker meeting operates by consensus. As in an academic faculty, the tendency is to postpone or pass over issues on which there is no clear consensus, which of course gives the small but dedicated minority a special kind of veto over changes in the *status quo*.

FLUID DRIVE FOR CENTRIFUGAL FORCE

The function of the academic dean then may be described as the deferential manipulation of an essentially legislative process. The process involves a maximum of apparent referendum and a minimum of overt initiative on the dean's part. Just as a legislator can gain a point by associating his own cause with the rights of legislatures generally, so a faculty leader always has in reserve one debating point of devastating potency. "I disagree with the dean about this," he can say. "Shouldn't we show the administration that the faculty cannot be dictated to?" Most groups, on or off a campus, will not regard any idea as acceptable unless it is considered as partly the product of the group's initiative. Academic faculties are no exception to this natural law of human relations.

The dean not only works with his faculty, he represents it in arguments with the president—or, in large institutions, with that vague, oblong, undifferentiated entity known as "the central administration" or "the front office." In this relationship he will find little nourishment in the principles (if such they be) of scientific management.

In managing his financial affairs, he must not be taken in by articles in the *Public Administration Review* describing the virtues of central budgeting. As the man in the middle, the dean's influence with his own faculty is directly proportional to his ability to lay his hands on additional resources that are divertible to faculty purposes—salary increases, research grants, travel opportunities, consulting jobs, summer workshops, and the like. Survival in academic administration therefore is the lot of those who are fittest to participate in the institution's budgetary shell game.

Flexibility is to be found in a large number of budgetary bird-baths, representing a wide

variety of financial sources, intermingled in the most complex possible manner. The goal of excessive complexity is all too easily reached.

The rewards for survival in the jungle of academic administration are many. Professor James McCamy of the University of Wisconsin says that professors are vowed to poverty and chastity in exchange for the freedom to eat lunch only with friends. For the "middle manager," this freedom is somewhat more restricted unless his friends are all moneyed folk. Yet the dean's opportunity to live in a company of colleagues unashamed of their intellectuality; the stimulation of his daily contact with campus life; his chance to circulate in the off-campus world as a representative of and salesman for organized brainwork are great rewards. Few tasks in our society offer so much and provide a monthly paycheck, too.

The price of this energetic but congenial work is the dean's willingness to learn that in management of academic organizations, unlike that of corporations and bureaucracies, the premium is on casual informality rather than rigid structure, on informal consensus rather than formal procedures for action. Academic administration is advanced not by the re-arrangement of solid particles but by chemical reactions in a liquid solution.

"If a man's thoughts are penetrating and his way fluid, while his plans are marvelously clever, such a one is called a strategist." So wrote Liu Shao in *The Study of Human Abilities* seventeen hundred years ago, during the politically chaotic period of the Three Kingdoms in China. He might have been setting up the recruitment criteria for a present-day academic dean. Few deans are penetrating thinkers and even fewer are marvelously clever; but we all apprehend by instinct that Fluid Drive is the central principle of academic administration.

Reports

AN EXTERNSHIP PROGRAM OF TWO MONTHS' DURATION

C. G. TEDESCHI*

Framingham Union Hospital, Framingham, Mass.

An externship program of two months' duration, extending from July through August, has been established at this Hospital for prospective third-year medical students. So far, the program has been made available to the students of three local medical schools—Harvard, Tufts, and Boston University. The number of applications received have surpassed our expectations, and because of the limited hospital facilities, enrolment has been restricted to sixteen students. The criterion used for the acceptance of the prospective candidates was merely that of priority of application. Although no consideration was given to scholastic standing, it was felt that, should we have had to choose between a student in good standing and another in poor standing, the latter would have been given priority.

The program was designed for the purpose of providing the medical students with a realistic introduction to clinical medicine, detached from the unescapable strain of formal instruction and grading. Since the greater part of the medical students are receiving at least a portion of their postgraduate medical education in nonuniversity-affiliated teaching hospitals and since their subsequent practice will be in the community hospital atmosphere, it was thought that early exposure to the environment of their future endeavors might prove to be beneficial in shaping their interests within the realm of practical medicine. It was also thought that an informal teaching program designed for medical students might strengthen the quality of our training program for interns and residents, broadening the entire teaching curriculum at the hospital, and advantageously stimulating the interest of both the house staff and the attending physicians.

The Cushing Hospital, now operated by the Massachusetts Department of Mental Health, and the Framingham Heart Program of the United States Public Health Service, both situated in the Town of Framingham, consented to make available to the students enrolled in the program the wealth of their clinical material as well as their professional talents.

The program includes rotation through the main services of the participating hospitals, with particular emphasis on physical diagnosis, demonstration of current pathological material, and clinical pathological correlation. During their stay, the students participate in the formal teaching exercises of the hospital, which consist of clinical pathological conferences, basic science lectures and the customary surgical and medical grand rounds.

Special conferences have been designed for the benefit of the students on basic concepts of ophthalmoscopy, pulmonary function studies, x-ray interpretation, blood bank operation, and evaluation of laboratory procedures. A special course in electrocardiographic techniques and interpretation has been made available by the Framingham Heart Program.

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These various exercises extend from Monday to Friday. Weekends are free, and the students are encouraged to enjoy the sports of their choice in between ward activities and conferences.

The hospital is so situated that the students may take advantage of a pleasant pond close by. Tennis courts are also available in proximity to the hospital.

There is increased need for expansion of educational facilities in medicine. If our externship program proves to be as successful as we anticipate, the experiment we have undertaken may be valuable in pointing out the beneficial role that a nonuniversity teaching hospital can play in undergraduate as well as in graduate medicine.

THE NATIONAL FOUNDATION CONFERENCE ON TEACHING REHABILITATION CONCEPTS AND TECHNIQUES—1959

CATHERINE WORTHINGTON, Ph.D.*

The interdependence of medicine, nursing, social work, and occupational and physical therapy in comprehensive patient care was stressed at the fifth annual conference¹ of fourteen institutions which receive National Foundation grants for the teaching of rehabilitation. How to provide medical students with a sound definition of rehabilitation, how to teach them rehabilitation processes, and how to illustrate the role of the patient in comprehensive patient care were the main topics of discussion.

It was generally agreed that the term "rehabilitation" is synonymous with comprehensive patient care—not with any specific branch of medicine. It was also agreed that a rehabilitation teaching program needs to be under the direction of a physician who is patient-oriented, not disease-oriented.

The conferees felt that in such a teaching program active participation by members of the associate professions is essential to demonstrate to medical students the scope of other disciplines and how they can contribute to the care of his patient. It was brought out that one of the problems is lack of effective communication between members of various disciplines. The need for good working relationships between the groups is great.

Two questions were discussed at some length: Where does the patient fit into the teaching scheme? How ready is the medical student to accept the concept of comprehensive patient care?

It was considered essential for the development of the medical student's attitude toward comprehensive patient care that he have the responsibility for a patient over a long period of time. For this reason the acute ward is not considered a good setting in which to teach comprehensive patient care. The need is for chronically ill patients who are cared for in a general or university hospital rather than in a specialized rehabilitation facility.

Dr. William S. Clark, Director of The National Foundation's Department of Medical Care, spoke on the role of the patient. He made four points:

1. Only rarely does a patient with a long-term disabling disease get the type of care he is entitled to. The expansion of basic knowledge of patients, as well as diseases, is essential to a systematic approach to rehabilitation. We have insufficient knowledge of the patient, his problems, his disease, his disability, and his adaptation to his environment. Almost no comprehensive longitudinal studies of the natural course of disease and disability include an analysis of the interrelationship between the disabled patient and his environment.
2. Our present technical knowledge of disease is adequate for a reasonably good job of

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¹ Held March 15, 1959, at Palo Alto, California. The four previous conferences covered the various ways in which medical schools approach the teaching of rehabilitation; ways of aiding a disabled person to attain realistic mental, emotional, social, and economic goals; the basic techniques of rehabilitation that should be taught to medical students; the function of the physical examination and the medical history in the teaching of rehabilitation tests; the influence of a respiratory and rehabilitation center on the teaching of rehabilitation, and the use of basic sciences and clinical investigation in the teaching rehabilitation principles.

rehabilitation. The difficulty lies in the physician's inability to bring the disabled *patient*, rather than the disease, into clear focus.

3. The great deficiency today is in the physician's concept of need, the compelling force which drives us to do something for the individual patient. Need obviously is determined in great measure by social values. Unfortunately, in the practice of our various disciplines, we are guided by a personal system of values. We must have a better understanding of the dynamics of interpreting need if we are going to cut through the confusion and chaos of patient care. It is in this area, Dr. Clark said, that we find our greatest single deterrent to interprofessional cooperation.

4. Our medical school programs should try more diligently to bring into focus some of the basic issues that are involved in total patient care and to provide the leadership necessary for an ever-increasing effort to meet the challenge of long-term illness. The university program should be able to evaluate critically the deficiencies of present methods and techniques for the care of chronically ill patients. We should approach rehabilitation with the same objectivity that we apply to the study of any physiological or biological problem. The medical school program, should, above all, recognize clearly that a satisfactory method for the care of the long-term patient has not yet been devised.

Dr. John L. Caughey, Associate Dean, School of Medicine, Western Reserve University, discussed the readiness of the student for a rehabilitation teaching program. No teaching program, he emphasized, can ever attain a high degree of success unless it recognizes the great diversity of the students' attitudes and career interests. Little will be accomplished in the teaching of rehabilitation unless the medical school considers each student's feelings about learning in general and about learning in the field of rehabilitation in particular. The tremendous scope and content of the curriculum convinces the student that there is more to learn than he can possibly learn. He is faced with feelings of anxiety which are realistically based, for he doubts his ability to meet the demands made upon him and to eventually assume, safely and successfully, the responsibility for the care of his patients.

He reacts to these pressures by progressively restricting his concept of medicine and by defining ever more narrowly his own role and objectives. This process in the individual becomes the basis for the increasing trend toward narrower specialization in the whole medical profession.

That almost all teaching in medical schools is done by specialists contributes to the student's dilemma. Each teacher, an expert in his own narrow field, seems to the student a paragon of knowledge. Too often this teacher demands far more from the student than he can give and still meet the demands made upon him by other teachers.

During his internship the student will usually serve in hospitals where the emphasis is on short-term care for acutely ill patients. Here his interest usually becomes increasingly focused on this type of problem, primarily because his next challenge will come in this area.

The plain fact is that the problems, difficulties, and frustrations associated with the comprehensive care of patients with long-term illnesses can be dealt with successfully only by a mature person. The rewards and satisfactions of this type of care are likely to be delayed. The majority of medical students are not, either professionally or personally, mature enough to voluntarily pursue the distant goals of long-term care.

Since comprehensive care with its long-term goals requires maturity on the part of the physician, the medical faculty must take steps to help the student mature as rapidly as possible. Maturity is probably attained more by the progressive assumption of personal

responsibility than by any other means. The forcing on immature students of concepts of medical care that can be understood only by the mature person is likely to produce resistance and repugnance. If resistance to learning about rehabilitation is based on anxiety about competence in acute care, or by a rigid definition of "scientific medicine," this resistance will probably be increased rather than decreased by forced participation in situations which are uncomfortable or distasteful, or which the student considers "not part of medicine." While it is the faculty, and not the student, which decides what the curriculum should be, the faculty is obligated to help the student become receptive to the subjects which the faculty believes the student should know. It is also up to the faculty to prevent the student's focus from narrowing and to get him to think of his job as a doctor rather than as a four-year medical student or an intern.

Individualization of the teaching program is a threat to the faculty because you can't individualize teaching to the point that you provide a special curriculum for each student. Those who are thoughtful about individual goals for their patients, should, however, be equally capable of developing individualized expectations for their student. Even in a standardized curriculum, one should still expect a normal distribution of interest and responsiveness among the students. This is the place for individualization of the teaching program.

Since the Stanford University Medical School acted as host for the 1955 conference, one session was devoted to a discussion of the Stanford plan of medical education and the teaching of comprehensive care within that program. Dr. Lyman Stowe described the plan in some detail.² Stanford has adopted the holistic principle that there is a fundamental core of knowledge of medical science to which all students should have access irrespective of the kind of careers they eventually choose. The proper way to supplement this core, according to Dr. Stowe, is to allow the student ample amounts of free time to use according to his individual preference. The core would then be developed through independent study, review of the basic material, or research. The responsibility for learning is placed on the shoulders of the student, who must be impressed with the importance of acquiring the principal approaches to problems in medicine rather than of memorizing a series of effects. Only when he learns how problems are dealt with in therapeutic terms will it be possible for him to give meaning to specialization.

The rehabilitation teaching program at Stanford University Medical School arose from the recognition that physicians need a broad education in the humanities if they are to develop, in medical school, the skills and attitudes essential to the provision of good medical care.

Dr. Rodney Beard, coordinator of the rehabilitation teaching program at Stanford, illustrated how the principles of comprehensive patient care (a term used interchangeably with rehabilitation) are introduced into the curriculum. In his first lectures on psychiatry, the first-year student is made aware of personality development and behavior patterns. He learns also of community health organizations, including those voluntary agencies—like The National Foundation—which provide medical services for the handicapped. During the ensuing years the student is concerned with physiology and anatomy and learns that the placement of a disabled patient in an appropriate job is a rehabilitation function related to medical science. He learns something about the use of psychological test procedures and psychodynamics, and in his seminars in preventive medicine reviews community resources

² L. M. Stowe, *The Stanford Plan: An Educational Continuum for Medicine*. J. M. Educ., 34: 1059, 1959.

for the sick. As a clerk he learns not only to diagnose disease but also to take into account the psychological, social, and vocational status of the patient. In his fifth year he learns to take a more responsible role in carrying through with the rehabilitation of one or more patients; now he consults all the medical specialties and allied sciences, the social worker and the vocational counselor.

At Stanford the students have many opportunities to observe and participate in patient care as a demonstration of rehabilitation. The clinical director is concerned with patient care more than with administration. Medical and associate medical specialists—including speech pathologists, engineers, psychologists, and others—are assigned to the service, for limited periods, from other departments of the medical school and from other faculties of the university. The two social workers in the rehabilitation service teach the medical student the social aspects of comprehensive patient care, and participate in curriculum planning, didactic presentations, seminars, ward rounds, case conferences, the selection of patients and families for study, and the evaluation of the students. The course content is designed to familiarize each student with the interplay of physical, emotional, and social factors in disease.

During his clerkship the medical student learns to work cooperatively with the social worker in helping the patient meet his material needs, deal with his personal and interpersonal problems, and plan for his hospital discharge and follow-up care. The social worker serves as a consultant to the medical student, discussing with him the significance of the patient's problems and needs and methods of helping him meet these needs. The principles of preventive medicine are applied to help the patient adjust or modify his environment to meet his special needs.

The Stanford rehabilitation service uses a pre-vocational unit as one means of helping the patient adjust to his environment. With the cooperation of the department of engineering, this unit is developing projects designed to test the patient's ability to return to industry.

The pre-vocational unit's first concern is with the kinds of jobs that require no specific technical training and no unusual physical exertion. Work sample testing is expected to provide data of four major types. The first is mechanical or manipulative and relates to the patient's ability to handle industrial equipment, materials, and processes. The second is physical and is designed to expand the medical information regarding the patient's physical ability to tolerate various work positions and routines. The third is intellectual and evaluates the patient's ability to understand operations and sequences of processes, and to follow instructions similar to those on usual job settings. The fourth is psychological and determines the patient's ability to persist in any given function and to understand the extent to which job situations produce stress detrimental to optimum job performance, and assesses his capacity for handling social relationships engendered by particular kinds of work.

The ultimate objective for each patient is the determination of his ability to develop and sustain levels of work behavior acceptable to industry.

Letter to the Editor

A SUMMER PROGRAM IN A CLINICAL DEPARTMENT AT THE COLLEGE OF MEDICINE FOR UNIVERSITY UNDERGRADUATES

Recently, the Roswell Park Summer Program for Students, in action for six years, was reported. A summer program has been used also by some divisions of the Public Health Service to try to get science and mathematics students in colleges interested in summer jobs and later in careers in the Public Health Service. One example of this is the summer student project at the Robert A. Taft Sanitary Engineering Center in Cincinnati. The summer programs at the U.S. Public Health Service and at Roswell Park are for the exceptional student. These jobs are few in number. However, there is need to try to reach the good student who is not certain that he wishes to go to medical college but who would like to try a summer orientation-type of job. A well planned summer program by interested medical teachers and medical research workers would be of considerable help to this student. In most colleges of medicine in the summer there may be what Acheson calls "creeping summer paralysis." However, there would be some departments with facilities available, especially those in the clinical division and those with clinical laboratories.

Such a summer school program has been in progress in the Department of Dermatology, College of Medicine, University of Cincinnati, now for a period of six years. Seven students have participated. Their educational status ranged from a high school junior to a college senior. In a Department of Dermatology summer is an active period, and extra help is needed. For example, in the present summer period, in addition to a planned program for a junior chemistry major at a university, there are two medical students participating in a summer program. All three students participate in research projects and in research conferences. The medical students participate in daily rounds, postgraduate courses, and seminars.

It is interesting to observe the results of such a program, even in a minor clinical department. The university undergraduate students selected in our program were variously majors in zoology and chemistry, as well as premedical students. The salary varied from \$40.00 to \$50.00 a week, with a maximum of three months' work. The students were selected because of interest in science, availability, and ability. The program was an informal one, and each job was related to a specific project including routine laboratory assignments. In the initial portion of the training period the subject was reviewed, and the university student spent most of his time in the library. Then, under guidance, a planned daily program of technical assistance was carried out in such projects as cytology technics, laboratory tests for lupus erythematosus, animal and insect experiments, and skin testing routines. Three papers were published with one or more of the university undergraduates as one of the co-authors. In addition, students participated in some of the summer postgraduate teaching programs of the Department. Two of the summer students have gone into full-time work in the basic sciences divisions in medicine; one plans to do so. Two others have changed to a premedical program in a university.

So far, no summer program with volunteer help was done, since it was felt that a specific job with specific responsibilities and salary was a much more significant project.

From experience then, it appears that a planned program for summer jobs in a college of medicine and even in a minor clinical department, such as Dermatology, is possible.

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ABSTRACTS FROM THE WORLD OF MEDICAL EDUCATION

ANGELA SANCHEZ-BARBUDO, PH.D.

Abstract Editor

Background and Current Status of Graduate Surgical Training. FRANK GLENN, M.D. *Annals of Surgery*, Vol. 151 (no. 6), pp. 834-40 (June), 1960.

This paper deals with surgical training as it is now available to medical school graduates in the U.S.A., and with its background and evolution during the past 60 years. Some of its current problems—a few of which are just beginning to appear on the horizon—are also briefly described by the author (of the Dept. of Surgery, The New York Hospital-Cornell Medical Center). A review of the past half-century in surgery, decade by decade, highlights, above all, the need to be aware of the new problems and of the complexities a changing society is likely to face, as well as the necessity for being flexible if the new problems are to be recognized and solved with reasonable speed. However, it seems to be a fact, lamented strongly by Dr. Glenn, that, as the tempo of activity increases in the American scientific institutions, and in particular in the medical centers, a steadily diminishing portion of our intellectual capacity is directed toward planning for the future. Yet the surgeons, especially, should be schooled in the critical appraisal of new developments. Among the immediate problems in the matter of surgical training listed by the author (without any attempt to trace their origin or to suggest solutions) the following are emphasized: (1) inadequate number of patients for residents' responsibility; (2) dilution of training programs by service to patients; (3) delayed recognition and correction of deficiencies of content due to new

developments; (4) erosion of the broad base of general surgery by the encroachment of the specialties; (5) distortion of standards by Board requirements; (6) mounting costs to support trainees with ever-increasing number of dependents, and reduction of trainees' time because of family responsibilities. Above all, there is ample evidence that the total number of young doctors now in surgical training is not sufficient to meet the country's anticipated needs. While it is urgent to solve these problems, it would also be beneficial, in the author's view, to try to anticipate, in a general fashion, the factors which will determine a training program 35-40 years hence, such as: an ever-increasing population; expansion of the field of surgical therapy; increasing extension of the life-span of the population; concentration in hospitals of patients under medical care; health becoming more and more a responsibility of the government; socio-economic changes affecting those in medical training; advances in science directly and indirectly related to industry, health and social activities, etc.

Educating the Physician for Medical Staff Responsibilities. LAWRENCE A. HILL. *Hospitals*, Vol. 34, Part I, pp. 54-59 (Aug. 1), 1960.

The hospital is becoming increasingly important to the private physician, since more and more of his practice is being centered there. This trend, which has been growing constantly during the past two decades, is seen to continue at an accelerated pace for the following three principal reasons: (1) the

tremendous progress in the medical sciences, (2) hospital-service requirement for licensure, and (3) increased specialization. The physician, therefore, if he is to develop all his potentialities, must be taught how to participate in hospital and medical staff organizations, which, as the author points out, is not a medical school function but a job for the hospital itself. In this paper a house officers program is described which has proved successful in the author's own hospital (Rhode Island Hospital, Providence), yielding benefits to both the staff and the institution. Stressed in the discussion of the different features of this program is the importance, for the physician, to be fully conscious of, and to accept, the organizational hierarchy into which he is moving, since otherwise he may be overwhelmed, confused, and even angered by it. The physician who best understands the organization of the hospital and medical staff and their relationship will operate most effectively within them, without losing an inordinate amount of personal freedom. It is pointed out, however, that the intern or resident, upon arriving at the hospital, has neither the time nor the inclination to undergo a course in hospital organization. Therefore, any such training effort, to be effective, must be so organized that house officers feel their needs are being met by it. The education program should closely parallel existing hospital practice and be as similar as possible to the organizational conditions faced by the active senior staff. At the Rhode Island Hospital, this problem was solved by establishing a *house officers association*, as a counterpart of the active staff's association, and, furthermore, a committee of the senior residents paralleling, to some degree, the executive committee of the active staff. The activities of this association are directed, in general, toward matters of self government, social activities, and the educational program (two examples of the type of activity in which the committee engages are described in detail). In his evaluation of the program the author asserts that progress in patient care as well as in solving hospital

problems through house staff bodies was undeniable. As to the educational benefits received by their members, on which this discussion is focused, it is, of course, impossible to evaluate them with any mathematical precision. However, evidence of definite success is seen in the much decreased incidence of individual house officers approaching active staff, administration, or nursing, with a demand for action on some problem. Another, still better, proof is offered by examining the activities of the younger active or staff members who have graduated from residencies at Rhode Island Hospital since the program began.

Étude Physico-Chimique des Retombés Radioactives. Incidences sur la Santé des Êtres Humains (Physico-Chemical Study of Radioactive Fall-Outs. Their Incidences on the Health of Human Beings). J. NIVEAU. *La Presse Médicale*, Vol. 68, No. 32, pp. 1269-1271 (June 25), 1960 (Paris).

The medical hygienist's concern should not limit itself to the mere enforcement of health legislation or the fight against the known enemies of human health: the constant study of Man and his vital environment would lead him to anticipate the effects of Man's activity on this *milieu*, as well as the latter's counter-effect on Man. In this connection, Man's experiences with the atom, as well as the counter-experiences actually pursued on Man himself, are offering the medical hygienist a vast field for observation, investigation, and working hypotheses. This paper deals with an investigation into the effects of radioactive fall-out on human health, which was carried out by various French medical schools during the years from 1956 to 1959. During the first phases of the research certain inflammatory affections of the respiratory organs were observed. Since these did not present the ordinary characteristics of microbial affections, some other agent, the presence of which could explain those inflammatory reactions, was searched for, the atmosphere itself becoming

the object of research during the ultimate stage of the investigation (starting in 1958). Contrary to the opinion generally voiced by most qualified specialists—physicists as well as physicians—it was found that Man does breathe in numerous and voluminous radioactive particles originated by American, Russian, and British thermo-nuclear explosions (at an average weekly rate of 20–100 radioactive particles per individual). The materials and methods employed in the said investigation are described in detail in this paper, as well as its specific results. The conclusions of a more general nature which could be drawn from the experiment are summed up at the end of the report, which also contains a list of pertinent bibliographical references.

L'Homosexualité Masculine (Male Homosexuality). A. TOURAINE. *La Presse Médicale* (Paris), Vol. 68, Part I, No. 27, pp. 1067–1069; Part II, No. 28, pp. 1107–1110.

A recent world-wide increase of homosexuality, especially among males, has given cause for concern to such an extent that the term "the danger of homosexuality" is frequently heard in this connection. The public's attention to the scope of the problem has also been aroused through a series of studies published within the last 3 years by eminent sexologists (Hirschfeld and Giese in Germany; Vachet in France; Allen and De Savitsch in England; Caprio in the U.S.A., etc.), which deal with the nature, cause, and treatment of homosexuality and analyze its psychological and psychopathological foundations. The present article, based largely on the mentioned investigations and on previous ones (on Kinsey, among others), as well as on some inquiries undertaken by the author himself, offers a discussion of the problem from various angles. It starts out with a comparative statistical survey of the incidence of male homosexuality in different countries and periods (from the last half of the past century up to today); underlying social conditions are then examined (also according to recent statistics), as well as the

individual characteristics attributed to the male homosexual. The social distribution of homosexuals, it is pointed out, presents great differences from one country to another. However, while in the past it used to be an inclination confined rather to intellectual circles, there seems now to be a tendency to extend also to the so-called lower classes, a sort of "democratization" of homosexuality. The second part of the report deals with the manifestations and evolution of homosexuality, taking into account the different theories emitted by the various schools of psychology. A special section is dedicated to the problem of male prostitution, another to the problem of homosexuality in connection with venereal diseases. The homosexual's (overt or secret) social behavior is also examined, as well as society's reaction toward homosexuality (stressed are the varying degrees of severity in the legislation and repression of homosexuality in the different countries). A concluding chapter surveys the different pathogenic interpretations concerning homosexuality: although the authorities are far from being agreed on the subject, the fundamental role played by *heredity* seems now to be admitted by most of the eminent sexologists (Krafft-Ebing, Moll, Ellis, Hirschfeld, for instance) and geneticists (such as Roemer, Wolff, Pils, Sanders, Bauer, Lang, etc.). A very substantial list of bibliographical references is added to the report.

Neuere Ergebnisse der Ernährungslehre (New Findings in Nutritional Science). Dr. DIETER HÖTZEL. *Therapie der Gegenwart* (Berlin), Vol. 99, Heft 7, pp. 324–332 (July), 1960.

Dr. Dieter Hötzel, a member of the Institut für Ernährungswissenschaft, University of Giessen, discusses in this paper some chapters from the field of nutrition which particularly affect problems of public health. Dealing, among others, with the problem of obesity which is today especially frequent in the industrialized nations, the author points out that, whereas overweight is, in the last

instance, a consequence of an intake of calories excessive in relation to the needs of the individual, there exist between nutrition and health other connections which have to do with the intake of insufficient quantities of certain nutritive substances and its effects on the defense against infection, etc. It may be rightly suspected, the author says, that the larger part of the world population is receiving only sub-optimal quantities of, for instance, such substances as thiamin, riboflavin, calcium, ascorbic acid, etc., without, however, producing, so far, any definite general deficiency symptoms. Discussed are some practical ways to increase the intake of "critical" nutritive substances.

The Price of Medical Education. OLIVER G. PRATT and LAWRENCE A. HILL. *Hospitals*, Vol. 34, Part I, pp. 44-47; 104-105 (Aug. 1), 1960.

This article deals with the cost of medical education to the hospital. Implied in this subject is a public criticism—actual or potential—that education costs are borne by hospitals and inevitably passed on, for the most part, in the bill to the patient. For their discussion, the authors use actual figures, derived from a large teaching hospital (Rhode Island Hospital, Providence), to show the extent of these costs and what they amount to in terms of charges to the patient. From the breakdown of the various figures obtained by "dissection" of one hospital's expenditures, it becomes obvious that a large percentage of the cost is incurred in areas of activities in which house officers are caring for the patient, in other words patients bearing these costs are paying for the medical service they receive. The per patient day or per visit cost of house staff depends almost entirely on their ratio to the number of patient days or visits: the more house officers and fewer patient days, the higher the per patient day cost for the house staff (the authors warn, however, that the figures given in this report hold true only for this particular hospital and should not be used as any sort of "formula"). Besides the fig-

ures, shown in detail in various tables, representing the costs for the different "clinical areas" of the hospital, according to skilled auditors and cost accountants, there exist other "hidden" costs (such as extra laboratory and other diagnostic procedures, value of teaching time donated by the active staff, etc.) which are also discussed in detail. The sum of the audited costs plus the hidden costs equal the total cost of medical education to the hospital. Once the cost has been determined, the question is naturally raised how these expenses are to be covered and who should bear the cost. With Rhode Island Hospital used as a fair example, it could be established that education costs to the hospital are paid by both private and ward patients, third party agents (Blue Cross, insurance, government), private endowments, government and foundation grants, special bequests and donations of time and money by physicians. Can there be, it is asked, a fairer method of paying for medical education? After considering the possible alternatives (the intern or resident, by tuition payment; concentration of all graduate medical education in government hospitals; the patient alone; the third party payer alone, etc.) the answer is that the actual way seems the best, since it represents a comprehensive partnership of private citizens or organizations and of government, from which all benefit. The question, furthermore, should not be, "What is the cost of medical education to the hospital?", but, rather, "What would the absence of medical education cost the hospital, the patient and the community?" The answer is: human lives.

Sinn und Zweck der Beschäftigungs- und Arbeitstherapie (Meaning and Aims of Occupational—and Work—Therapy). A. N. WITT. *Deutsches Medizinisches Journal*, Vol. 11, Heft 2, pp. 48-51 (Jan. 20), 1960.

Although rehabilitation and re-incorporation into the production process are not new ideas, it was only after World War II, with its innumerable victims of serious injuries,

that real progress has been made toward a solution of the rehabilitation problem. Occupational and work-therapy have greatly contributed to this solution. (While the idea of rehabilitation itself originated in Germany, occupational therapy was conceived and practiced first in Anglo-Saxon and Scandinavian countries, long before it was introduced to Germany, where the first training school for occupational therapists was founded in Hannover in 1953). In the present discussion a distinction is made between *occupational therapy* and *work-therapy* (*Arbeits-Therapie*). The former, according to the author, is any activity by a patient apt to further mental and physical recovery from his illness. Work-therapy, on the other hand, includes the concept of actual *achievement*, or work *product* (which is lacking in occupational therapy), since its principal aim is to re-accustom and readjust the patient to a steady, useful activity. It is therefore *after* the occupational therapy has been employed successfully that work-therapy should be applied. Also discussed is the varying role both these therapies play in dealing with the different types of diseases (of the greatest importance in all *chronic* illnesses, they also play a significant part in pediatrics and orthopedics). The point is stressed, however, that both therapeutic methods are aimed not only at an increase of functional activity but at providing satisfactory *recreation*, an important factor in the therapeutic process. Occupational and work-therapy can be practiced individually or in groups. Both ways require supervision and proper dosage by a physician. In order to be successfully applied in the hospitals, certain arrangements and equipments—here described in detail—are also needed. Occupational therapy, furthermore, requires, above all, the full-time dedication of a specially trained staff. Foreseeing the need in tomorrow's hospital organization for a more systematic and longer range-planning of occupational and work-therapy, as well as for a greater number of occupational therapists, the author points out that to meet these needs in the near future greater attention must be given to the

training of these therapists and the development of new teaching methods and facilities.

The Uses of Elegance. An Address by DANA W. ATCHLEY, M.D. *Annals of Internal Medicine*, Vol. 52, No. 4, pp. 881-889 (April), 1960.

A contribution to the history of medicine in a light vein, this address, delivered at the Gold-Headed Cane Ceremony, of the U. of California School of Medicine (San Francisco, June 10, 1959), discusses the concept of elegance in relation to the medical profession. A symbol of medical elegance is seen in the gold-headed cane carried by the highly successful London practitioners of the 17th and 18th centuries. Those physicians, the author points out, were artists rather than scientists, but they were also patrons of science (like, for instance, Mead, Newton's physician), and true elegance can be found in the cultural aspects of their lives. The last "cane-bearer" was Matthew Baillie, who died in 1823; his *Morbid Anatomy* (published in 1793) was the first systematic text of pathology in English, and its engravings are described as "at once masterpieces of science and elegance." From the author's perspective, however, the really elegant feature of this book is the inclusion of case histories correlated with the anatomic abnormalities, which may well have been the germ of the clinical-pathologic conference. Also sketched in this paper are the profiles of some American representatives of the "spirit of the Cane." Among them, Harvard's one-time anatomy professor, Oliver Wendell Holmes, is the author's principal nominee for the gold-headed cane. He is seen as a poet and novelist, a wit and satirist, celebrated in the brilliant circles of the Boston literati of his day. His literary fame for some time even overshadowed his medical reputation, but, recalling some of Holmes' comments on medical education and the philosophy of medicine, Dr. Atchley expresses the opinion that, had he never published a verse, his medical writings alone would have kept

his name alive, not to speak of his greatest contribution to medicine, his paper on *The Contagiousness of Puerperal Fever*. This work, which Holmes, aged 34, presented to the medical world in 1843, has saved innumerable young mothers from early death. It is praised by Dr. Atchley as a truly elegant manifestation of scientific logic and investigative energy. In the concluding passages of this address, the speaker draws attention to

another type of medical elegance, "the elegance of that fusion of the healer and the scientist" which, in his eyes, constitutes the true art of medicine. It is his conviction, moreover, that medicine is the only profession "that gives unlimited opportunities for combining the richness and the joys of both the scholar and the humanist." Medicine, therefore, is to be considered the most elegant of all professions.

NEW BOOKS

KENNETH E. PENROD
Book Review Editor

Abstracts

The Principles and Practice of Medicine.

A Textbook for Students and Doctors. By SIR STANLEY DAVIDSON. 5th ed. Baltimore: The Williams & Wilkins Co., 1960. 1,083 pp. \$8.00.

The general policy governing the selection of material for description and discussion in this text was as follows: "It was decided that no attempt should be made to describe every rare disease or syndrome, but to devote most of the space available to those disorders most commonly encountered in practice. The selection of the rarer diseases for inclusion and the amount of space devoted to them was based principally on their cultural interest or educational value as examples of applied anatomy or physiology." Each section of the book starts with a discussion of the anatomy and physiology of the system concerned, in order to encourage a rational approach to an understanding of symptomatology and treatment, and ends with a review of the measures available for the prevention of disease. As a result of new material in almost every section, the size of this edition has been increased by 45 pages. This increase would have been much greater if every chapter had not been carefully reviewed with the object of deleting any material that was redundant or out of date. The seventeen contributors to this volume are drawn from past and present staff of the Department of Medicine of the University of Edinburgh and its associated clinical units. Through the close cooperation between the contributors and the editor it has been possible to achieve the balanced style and composition which are said to characterize the work of a single author, and at the same time to reflect the diversity and depth of knowledge and experience which can only be contributed by a team of physicians.

Zinsser Microbiology. By DAVID T. SMITH and NORMAN F. CONANT, with seven other

contributors. 12th ed. New York: Appleton-Century-Crofts, Inc., 1960. 1,003 pp. \$13.00.

In this edition a section of parasitology has been included, and the name of the text has been changed to "Microbiology." The authors have decided to keep the name of Zinsser on this edition in acknowledgment that the general point of view is essentially that of Zinsser, as is the balanced treatment of the various phases of microbiology. Since the first edition in 1910, the authors have emphasized the importance of a basic approach which would include not only the biologic characteristics of the organisms but also the reactions of the living tissues to the bacteria and their products. This approach has made the volume of equal value to the microbiologists and to the student of public health and clinical medicine. An important feature of this new edition is the inclusion of four new chapters on parasitology. The chapter on general morphology and reproduction of bacteria has been rewritten, and nine new illustrations have been added. Material on Asian influenza and the newly discovered hemadsorption viruses has been included in the section of virology. The chapters dealing with infection have an introductory paragraph which emphasizes the public health aspect of the disease. The important biologic and cultural characteristics of the organisms have been emphasized by printing them in bold-faced type. High technical sections and descriptions of diseases of minor importance have been printed in small type. There are 52 new illustrations in this edition, including three full-page color plates in the section of parasitology. This brings the total number of illustrations to 461.

Internal Medicine. A Physiologic and Clinical Approach to Disease. By ROBERT P. McCOMBS. 2d ed. Chicago: The Year Book Publishers, Inc., 1960. 727 pp. \$10.50.

The need for a more simplified and integrated approach to internal medicine prompted the original preparation of this book and now its

revision. An attempt has been made to marshal the essential facts and theories and to minimize those that are unimportant and controversial. The most important advances since the first edition of this book are those in which greater knowledge has been obtained of disturbed physiologic mechanisms involved in disease. This knowledge has led to the development of new diagnostic techniques and has served as a tremendous stimulus to the development of new therapeutic methods. Many new concepts are outlined in this edition. Likewise newer diagnostic methods are discussed. Because of the increasing importance of open heart surgery the section on congenital heart disease has been revised. Also a summary of diagnostic points in electrocardiography has been included. Among the new therapies outlined are: antihypertensive agents, diuretic agents, tranquilizers, psychic energizers, corticosteroids, growth hormone, oral antidiabetic compounds, antimicrobial agents, antimetabolites, and others.

Medical Physiology and Biophysics. Edited by THEODORE C. RUCH and JOHN F. FULTON, with 23 contributors. 18th ed. of Howell's Textbook of Physiology. Philadelphia: W. B. Saunders Co., 1960. 1,179 pp. \$16.00.

In its eighteenth edition this well known book has received a new title. The new title was chosen to represent the editors' conviction that physiology should be developed and taught "in depth." Such depth is attained by ranging from fundamental approaches derived directly from the university disciplines, especially physics, through classic physiology to clinical physiology. The criterion for the inclusion of clinical physiology has been: does physiology illuminate the pathologic state, or, conversely, does the abnormal function point up the normal physiology? The emphasis on the clinical applications of physiology has been considerably increased in this edition, but space limitations prevent a complete and systematic presentation. An effort has been made to maintain an important feature of previous editions, the authority which comes with drawing authors from various laboratories. At the same time an attempt has been made to gain a uniformity of level, point of view, and style by having many excellent chapters of the seventeenth edition rewritten or revised by a geographically related group of authors and by editing for content and expres-

sion considerably more than is usual for textbooks with many authors. Many chapters are completely or extensively rewritten. In this category are nearly all the chapters on nerve, muscle, reflexes, and motor systems of the brain; the chapters on blood, hemodynamics, the cardiac cycle, the electrocardiogram and the control of cardiac output; and all but one of the chapters on respiration. In addition, renal physiology has been freshly described, using the terminology and concepts of physical chemistry and emphasizing the concepts of active transport. The chapters on the endocrines and reproductive physiology have been thoroughly revised in the light of recent advances in these fields. Three excellent chapters have been dropped from this edition on the grounds that their subject matter has largely passed into the realm of biochemistry and are adequately handled in textbooks of that field. On the other hand, two chapters have been added, one on the biophysics of the cell membrane and the other on the neurophysiology of emotion.

A Functional Approach to Neuroanatomy. By EARL LAWRENCE HOUSE and BEN PANSKY. New York: McGraw-Hill Book Co., Inc., 1960. 478 pp. \$12.50.

This book was written primarily with the medical student in mind; it is designed to meet the needs of basic courses in neuroanatomy at a time when time itself has become a great factor in medical education. The approach is functional, but above all it is systematic, strictly adhering to the systems, once the basic fundamental consideration of evolution, development, and anatomy have been covered. The early chapters dealing with the basic fundamentals of the nervous system are comprehensive and thoroughly illustrated, nonetheless, since it is felt that a basic comprehension of the fundamentals of embryology and anatomy is an essential prerequisite for an understanding of the intricacies of both the normal and the abnormal functions of the nervous system. Since the reflexes represent the first order of nervous activity in the body, they are placed first in the discussion. The illustrations have been simplified into concise black and white line drawings with a minimum of labeling. Every chapter is followed by a summary which should enable the student to make frequent reviews. Considerable emphasis is placed on clinical considerations. All specific biographic references have been omitted from

the text, not because the authors have failed to appreciate the importance of the contributors in this field, but for the sake of smoother reading. A modest, general bibliography is placed at the end of the book.

Manual of Histologic and Special Staining Techniques. 2d ed. New York: McGraw-Hill Book Co., Inc. 201 pp. \$5.50.

In response to great demand the Mary Francis Gridley Memorial Fund has agreed to publication of a second edition of this work. Based on Miss Gridley's "Laboratory Manual of Special Staining Techniques," this edition has been prepared by her colleagues in the Histopathology Laboratory of the Armed Forces Institute of Pathology, publishers of the first edition in 1957. The original text has been revised, and additions necessary to bring it up to date have been made. No claim is made for the originality of the methods presented herein. Unless specifically stated, basically they are standard, but have been given new "twists" by the technicians in the Armed Forces Institute of Pathology. Most of these modifications have provided the solution to difficulties encountered in applying special techniques to tissue which is fixed routinely.

A Primer of Water, Electrolyte and Acid-Base Syndromes. By EMANUEL GOLDBERGER. Philadelphia: Lea and Febiger, 1959. 213 pp. \$6.00.

Because of considerable dissatisfaction with the manner in which this subject has been presented in the past the author has attempted to present the subject in the following ways: he has described the various disturbances in terms of patients and clinical syndromes, rather than as chemical disturbances. He has described a very simple method of differentiating true sodium loss, from a decreased serum sodium concentration due to an internal shift of sodium into the cells. The entire subject of acidosis and alkalosis is discussed in terms of the newer chemical concept that an acid is a hydrogen ion donor, and a base is a hydrogen ion acceptor, rather than in terms of the old concept of "alkali reserve." He has described the diagnosis of acidosis and alkalosis in terms of pH and the CO_2 content, and in terms of a very simple relationship between the CO_2 content and the CO_2 capacity, the CO_2 capacity being calculated from the pH and the CO_2 content, by means of a nomogram. He has

described a simple formula to measure the value of R, which represents the so-called unmeasured ions of the serum. He has described the use of electrolyte solutions, as far as possible, specifically in terms of: the type of fluid needed; the volume of fluid needed; the route of fluid administration; and the rate of fluid administration. A selected list of references has been appended at the end of each chapter for further study.

Practical Clinical Management of Electrolyte Disorders. By WILLIAM J. GRACE. New York: Appleton-Century-Crofts, Inc., 1960. 127 pp. \$4.95.

This monograph approaches the problem from the point of view of describing the clinical syndromes of electrolyte disturbance, briefly explaining the mechanisms involved, and indicating principally what can be done to correct them. It is intended to serve as a guide to bedside clinical management of the electrolyte problems. In addition, it is the author's desire that by describing the clinical syndromes physicians will become aware of the frequency of such problems and will look for them in their patients. Illustrative case reports are used to supplement the text in the classical teaching manner of internal medicine.

An Introduction to Electronics for Physiological Workers. By I. C. WHITFIELD. 2d ed. New York: St. Martin's Press, 1959. 257 pp.

Since the first edition of this book the major development in the field has been the emergence of the transistor and other semiconductor devices. The use of new instruments incorporating such devices is increasing rapidly, as are the possibilities for their adaptation. Techniques are by no means yet stabilized, but an attempt has been made in this edition to outline the way in which semiconductor devices function, and to point out the main differences in design problems of transistor and valve circuits.

How To Learn Medicine. By A. E. CLARK-KENNEDY. London: Faber & Faber, 1960. 224 pp. 12s 6d.

The purpose of this book is to help the student to learn for himself from his lectures, practicals, reading, and clinical cases rather than to get into the habit of allowing himself to be taught passively. The author has been dean of a medi-

cal school for many years and a clinical teacher of wide experience well qualified to speak. An effort is made to tell the student how to organize his time and plan his work, how to read and make the most of his clinical experience, how to face his examiners, and how to develop his personality so as to become a doctor. The object of the book is not to teach medicine but to help the reader learn for himself from his own experiences.

To Know the Difference. By ALBERT B. ULLMAN. New York: St. Martin's Press, Inc., 1960. 234 pp. \$4.75.

This book is written for alcoholics and for their families. It is intended to bring the understanding that leads to enlightened and positive action. It is a reflection of the author's point of view that alcoholism is a disease rather than a symptom of some psychic abnormality. He presents guides to be followed in obtaining treatment, the institutions now qualified to treat addiction as a disease, and the newly developed clinical approach that treats the patient at night and allows him to follow his normal working routine by the day. The author is Professor of Sociology at Tufts University.

Dictionary of Abbreviations in Medicine and the Related Sciences. By EDWIN B. STEEN. Philadelphia: F. A. Davis Co., 1960. \$2.50.

The author professes two hopes with the publication of this handy pocket-sized reference book: to provide the first comprehensive dictionary of abbreviations in the field of medicine and related sciences and further that this work will bring a bit of standardization into an otherwise chaotic field. Unfortunately, much duplication exists in the use of abbreviations. It is hoped that this publication will lead to some simplification.

Pressure Group Politics. The Case of the British Medical Association. By HARRY ECKSTEIN. Stanford, California: Stanford University Press, 1960. 163 pp. \$3.75.

This book is a commentary by an American social scientist on pressure group politics in general and British medical politics in particular. Many revealing comparisons with medical and other pressure groups in the United States are

made. It presents the most detailed study available of any British pressure group, and it places this detail in the framework of an original general theory of pressure group politics. The author analyzes the structure of the British Medical Association, the political machinery it attempts to influence, the attitudes toward medical politics on the part of both doctors and the general public, the channels through which the B. M. A. acts on politics, and its effectiveness as a pressure group. His conclusions about the role of pressure groups in popular governments are much less pessimistic than those of previous writers: he argues that such groups are indispensable in an effective democracy.

Emotional Maturity. The Development and Dynamics of Personality. By LEON J. SAUL. 2d ed. Philadelphia: J. B. Lippincott Co., 1960. 379 pp. \$6.50.

In this book it is the author's premise that those laws of human behavior which are really basic are also simple and can be simply stated. He has attempted to map the paths to emotional maturity as well as the bypaths of emotional instability. In his clarification of the essentials of human nature and the goals of its mature fulfillment, he offers clearly formulated general concepts and numerous specific illustrations of these concepts. This up-to-date second edition includes an expanded and more detailed section on theory which reflects the gradual emergence of psychodynamics as a basic science.

Hysteria, Reflex, and Instinct. By ERNST KRETSCHMER. New York: Philosophical Library, 1960. 159 pp. \$4.75.

The author has built his theory of hysteria on the foundation laid by Charcot's studies of suggestions and hypnosis and Freud's discovery of the interrelations between psychic and somatic disturbances. In this newly revised and augmented edition of his work he treats the problem of hysteria from the ontogenetic viewpoint and from the viewpoint of goal-directed behavior. The work provides a basis for diagnosis and treatment of hysteria in related conditions. Many of the findings, based largely on materials relating to World War I but supplemented by case history drawn from clinical records, have applications, not only in the field of psychodynamic disorders but also in the field of behavioral psychology.

A Structure of Science. By JOSEPH H. SIMONS. New York: Philosophical Library, Inc., 1960. 269 pp. \$4.75.

This book is divided into three parts. In Part 1 an attempt is made to show what science is, what it is not, and how it fits into the framework of human knowledge and experience. It also discusses scientists, who they are, what they do, and how they think. Part 2 deals with the basic intuitive concepts of science and shows their mutual relationships, their relationships to the useful abstractions of space and time and to common experience. In Part 3 an effort is made to resolve some of the apparent conflicting consequences of certain scientific beliefs. This book should appeal to all readers who wish further insight into the thought patterns used in science, and should give them an appreciation of science's place in human affairs, its potentialities as well as its limitations, and those conditions that can either promote or retire its future development.

A Neutral Spirit—A Portrait of Alcohol. By BERTON ROUCHE. Boston: Little, Brown & Co., 1960. 151 pp. \$3.50.

This book by a well known science writer is a searching study of alcohol: its nature, its history, and the ageless problems it has presented to man. The author has attempted to erase many of the myths and misunderstandings concerning alcohol.

Help-Bringers: Versatile Physicians of New Jersey. By FRED B. ROGERS. New York: Vantage Press, 1960. 125 pp. \$2.95.

This book highlights the achievements of twelve New Jersey physicians who were concurrently pastors, patriots, poets, scientists, public officials, and distinguished figures in other fields. The span of time covered is from Dr. John Browne (1667-1737) to Dr. Henry Leber Coit (1854-1917).

Passport to Paradise . . . ? By BERNARD FINCH. New York: Philosophical Library, Inc., 1960. 186 pp. \$6.00.

The purpose of this book, written primarily for the general reader, is to enlighten the public about drugs, their origin, history and uses; and to sweep aside prejudices and misconceptions surrounding them. The book also provides a background of general knowledge concerning the action of drugs from the pharmacological aspect. It may be of some value to medical and pharmaceutical students, and those who seek more information about the important recent discoveries dealing with the affect of drugs on the mind.

Energies of the Universe. By EUGENE FRITZ. New York: Philosophical Library, Inc., 1960. 124 pp. \$4.75.

In this popularized account of natural phenomena as understood by modern science, the author has marshaled a host of facts and figures to support the view that the education of today's scientists is in many instances based on this conception, and is now obsolete. This he holds to be especially true in relation to our notions of the origin of atomic energy, temperature factors in the heat of nuclear energy, and temperature factors in the heat of the sun. He explains that the energy and the structural forces of every universe are generated in the same manner. Among the other familiar notions he questions are those relating to the generation of gravitation, the cause of radiation, the cause of the velocity of light, the meaning of the "weight" of the atom, the cause of the earth's revolutions, the cause of the trade winds, and many others. This book should be of interest not only to students of science, but to laymen interested in the new scientific interpretation of reality.

A Syllabus of Laboratory Examinations in Clinical Diagnosis

CRITICAL EVALUATION OF LABORATORY PROCEDURES IN THE STUDY OF THE PATIENT

Revised Edition

Edited by Lot B. Page, M.D., and Perry J. Culver, M.D. A complete revision of the original *Syllabus of Laboratory Examinations in Clinical Diagnosis* that was edited by Dr. Thomas Hale Ham. The emphasis on interpretations and limitations of laboratory procedures has been preserved and expanded, and each of the units has been extensively revised and brought up to date. Thirty-three competent authorities in their special fields have contributed to the rewriting of the *Syllabus*. \$12.50

Disease and the Advancement of Basic Science

Edited by Henry K. Beecher, M.D. Based on the celebrated Lowell Lectures of 1958, this study shows that certain fundamental scientific advances can be made only from the direct study of disease in human patients. Twenty-one distinguished physicians and scientists, including Linus Pauling, Alexander G. Bearn, Paul Weiss, Carl F. Cori, Fredrick J. Stare, and David G. Cogan, discuss the problem from the vantage points of their experience and special knowledge. 44 halftones, 39 linecuts. \$12.50

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HIS PHYSICAL, PSYCHOLOGICAL, AND SOCIAL DEVELOPMENT

Harold C. Stuart, M.D., and Dane G. Prugh, M.D., Editors. Introduction by Martha M. Eliot, M.D. Twenty-two experts provide essential information for workers in the fields of education, psychology, nutrition, social work, nursing, and public health, considering pregnancy and the child's development from the fetal period through adolescence. Special emphasis is placed on the child as an individual who is changing according to natural laws and in-born potentialities. \$10.00

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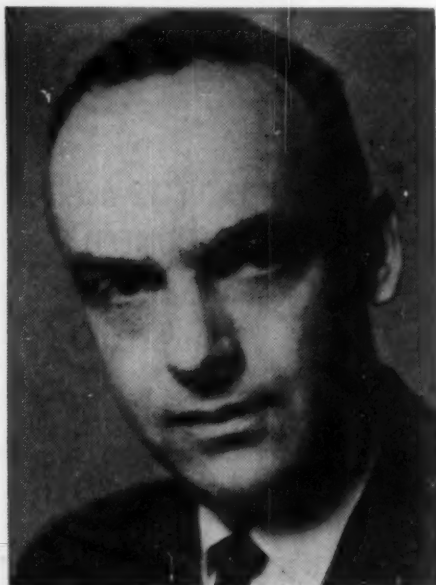
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NEWS FROM THE MEDICAL SCHOOLS

New Deans for U. of Chicago and Ohio State

Dr. H. STANLEY BENNETT, professor and chairman of the department of anatomy, the University of Washington, has been named Dean of the Division of Biological Sciences at the University of Chicago, according to announcement by R. WENDELL HARRISON,



DR. H. STANLEY BENNETT

acting chancellor of the university. Dr. Bennett succeeds Dr. LOWELL T. COGGESHALL, who was made a Vice President of the university in March, after serving as Dean for the past 13 years. Bennett will assume his new post January 1.

A graduate of Oberlin College, Dr. Bennett obtained his medical degree from Harvard University in 1936 and began his teaching career there. He joined the University of Washington faculty in 1948 after

serving three years on the faculty of the Massachusetts Institute of Technology as associate professor of cytology.

Dr. Bennett, a biologist, is known as a specialist in cellular anatomy and cytochemistry. He has just completed a term as president of the American Association of Anatomists.

"The University of Chicago is indeed fortunate to have found such an outstanding research biologist to carry on the tradition of inspired leadership in its Division of the Biological Sciences," said Chancellor Harrison in announcing Dr. Bennett's appointment.

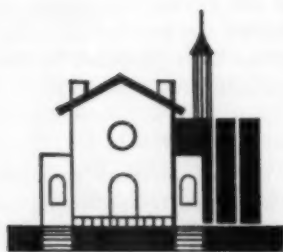
Dr. RICHARD L. MEILING, Associate Dean of the Ohio State University College of Medicine, was appointed to succeed Dr. CHARLES A. DOAN as Dean of Medicine, effective January 1. Dr. Doan relinquishes his administrative posts of Dean and Director of the University Health Center upon the university retirement age of 65. As Dean emeritus he will continue as professor and director of medical research in the department of medicine.

Dr. Meiling received his M.D. degree in 1937 from the University of Munich, where he was the only non-German that year to receive a license to practice medicine in Germany.

He first became associated with Ohio State University in 1938 as an intern in University Hospital. After World War II, he returned to the Ohio campus as clinical assistant professor of obstetrics and gynecology and instructor in pathology. During 1949-51, he was granted a leave of absence to serve as Secretary of Defense for Medical and Health Affairs and Director of the Medical Services of the Department of Defense. Upon his second return to the Ohio medical faculty in 1951, he was named Associate Dean, Associate Director of the Health

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TEXTBOOK OF OTOLARYNGOLOGY

This 1960 Mosby release is a clearly written and up-to-date text that reflects the trend to broaden the scope of the ENT specialty. Written by two outstanding men who are active practitioners and experienced teachers, this authoritative text is more complete than any student book yet available, but it is concise enough to be read during an average length course. TEXTBOOK OF OTOLARYNGOLOGY employs more than 350 fresh, pertinent illustrations to demonstrate to the student every aspect of the subject from the details of examination to the identification of common lesions.

Separate chapters are devoted to physical diagnosis, salivary glands, facial nerve, physiology of hearing and modern audiometry including the latest testing methods. Easy-to-understand discussions of diseases affecting the oral region, tracheotomy, causes and treatment of hearing loss, hearing aids, lip reading, rehabilitation, otologic surgery and an outstanding treatment of speech disorders make this a textbook worthy of serious consideration now for your course next semester.

By DAVID D. DeWEESE, M.D., Clinical Professor of Otolaryngology, University of Oregon Medical School, Portland, Oregon; and WILLIAM H. SAUNDERS, A.B., M.D., Associate Professor, Department of Otolaryngology, Ohio State University, Columbus, Ohio. New. 1960, 464 pages, 6¾" x 9¾", 354 illustrations. Price, \$8.75.

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**PHYSICAL DIAGNOSIS—The History
and Examination of the Patient**

If you agree with the experienced teachers who authored this modern Mosby textbook that the fundamental objective of a modern course in "Physical Diagnosis" is to teach the student how to obtain a good history and to perform a systematic physical examination, you may find that this book more than adequately fulfills your textbook requirements. Written with a realistic approach to the problems which confront the medical student facing for the first time the many challenging and bewildering clinical problems of a practicing physician, this book is the only text which provides the student with all of the following essential information: (1) It devotes particular attention to the student's approach to his patient. (2) It profusely illustrates with diagrams and photographs the techniques of the physical examination. (3) It eliminates eponyms, yet aids students in achieving fluency in medical communication. (4) It provides a detailed review of body systems and helps the student to learn new clinical terms.

By JOHN A. PRIOR, M.D., Professor of Medicine, Ohio State University, College of Medicine, Columbus, Ohio; and JACK S. SILBERSTEIN, M.D., Clinical Associate Professor of Medicine, Ohio State University, College of Medicine, Columbus, Ohio, and 8 contributors. 1959, 388 pages, 6¾" x 9¾", 193 illustrations. Price, \$7.50.

Center, and associate professor of obstetrics and gynecology. In 1957 he was promoted to full professor and was also named professor of aviation medicine.

In recommending the appointment of Dr. Meiling to the school's trustees, President NOVICE G. FAWCETT said it had been given unanimous endorsement by a College of Medicine faculty committee charged with considering nominees for the deanship from both national and local scenes.



DR. RICHARD L. MEILING

Arkansas

Dr. MERRILL GRAYSON has resigned his position as assistant professor of ophthalmology at the Indiana University School of Medicine to take over the chairmanship of the department of ophthalmology at Arkansas. A graduate of New York Medical College and former ophthalmology consultant for the third Air Force in Europe, he had been in private practice at New London, Conn., before joining the I.U. medical faculty in 1958.

Baylor

The first cardiovascular research center in the United States is being established at the Baylor College of Medicine with funds

provided by the National Heart Institute of the Public Health Service, according to Dr. STANLEY W. OLSON, Dean. Initial funds of \$262,500 for the first year will be used in developing both basic and clinical research studies in this field. A substantial portion of the initial fund is being allocated for the establishment and maintenance of a 6-bed research ward where patients with various forms of cardiovascular disease may be carefully observed to learn as much as possible about the nature of their illness. Principal investigators who will be supervising the development of the research studies are Dr. RAYMOND D. PRUITT, professor and chairman of the department of medicine, and Dr. MICHAEL E. DEBAKEY, professor and chairman of the Cora and Webb Mading department of surgery.

Coming on the heels of the announcement of the new cardiovascular research unit is the disclosure of a \$6 million building program involving the construction of three medical research buildings by the Texas Medical Center for the use of Baylor's College of Medicine. The buildings will more than double the present space facilities of the College of Medicine. There will be more than 300 research laboratories, including seven cold room laboratories.

Grants of \$1 million from the Houston Endowment, Inc., \$1 million from the M. D. Anderson Foundation, and \$450,000 from members of the Jewish community in Houston have cleared the way for the project. The balance has been provided by the Health Research Facilities of the NIH.

Boston

The new \$3 million medical research building, one of the largest research units in the country and first major step in the long-range development programs of the Boston University-Massachusetts Memorial Hospitals Medical Center, was dedicated October 28. Federal, state, medical school and hospital officials participated in formal ceremonies climaxing a day-long program of science sessions at which a panel of medical authorities evaluated "The Role of Research in Medicine."

Providing research areas for the basic science departments and the medical, surgical and mental health divisions of the medical school, the unit will have over 100 laboratories and a variety of special research facilities, such as low level radioactive isotope counting equipment, electron microscopes, and controlled environment rooms.

Chicago Medical

Dr. EMANUEL E. MARCUS and Dr. ALDO A. LUISADA attained the rank of full professor, according to a recent announcement by the school's President, Dr. John J. Sheinin.

Dr. Luisada, who became professor of medicine, is a graduate summa cum laude of the Royal University of Florence Medical School. He has held numerous professorial posts in Italian universities as well as in this country. Dr. Marcus, clinical professor of surgery, received his M.D. degree from Rush Medical College and interned at Michael Reese Hospital, where he is presently on the staff. He is the author of a textbook, recently published, on principles of surgical procedures.

Georgetown

Dr. HUGH H. HUSSEY, Dean of the School of Medicine, has been appointed to the Board of Regents of the National Library of Medicine.

Hahnemann

Hahnemann Medical College and Hospital and Misericordia Hospital have affiliated for a pediatric teaching program. The affiliation is part of a broad program of development taking place at Misericordia and will increase that Hospital's services, while enhancing the teaching program for pediatrics at Hahnemann, said Dr. CHARLES S. CAMERON, president of Hahnemann. To further coordinate the teaching and service program of the pediatric departments of the two hospitals, Dr. CARL C. FISCHER, professor of pediatrics at Hahnemann, has been elected consulting pediatrician to the Misericordia Hospital and the members of that hospital's pediatric staff have been invited to become

members of the affiliate faculty of the Hahnemann Medical College and Hospital.

Johns Hopkins

The School of Medicine has added two professors to its staff with the appointment of Dr. WALTER HERMAN SHELDON as professor of pathology and Dr. IRVING HENRY LEOPOLD as professor of ophthalmology.

Dr. Leopold comes to Johns Hopkins from the University of Pennsylvania Graduate School of Medicine, where he was professor and head of the department of ophthalmology. He will assume his new position January 1. From 1940 to 1943, Dr. Sheldon was an instructor in pathology at Harvard University and in 1943, joined the medical faculty at Emory University as assistant professor of pathology. He became head of that department in 1949.

Kansas

Dr. MAHLON DELP has been named chairman of the department of medicine and also was named the first occupant of the endowed chair in medicine, the Peter T. Bohan professorship.

A member of the faculty since 1938, Dr. Delp received both his B.S. and M.D. degrees from the University of Kansas and has been an associate in medicine, professor of medicine and assistant dean in charge of postgraduate medical education.

Kentucky

First classes are now in full swing in the new medical center at the University of Kentucky, thus marking a milestone of progress in the development of the institution.

Figures of national prominence in medicine and related fields joined Kentucky's Governor Bert T. Combs, UK President FRANK DICKEY, and the school's Dean, Dr. WILLIAM R. WILLARD in dedication ceremonies, Sept. 23-24. Tours of the six-story Medical Science Building, containing instructional, research, and personnel facilities for the College of Medicine and the College of Nursing, were conducted for the several

thousand persons who attended the ceremonies.

Under construction are the 500-bed hospital and the dental wings. The dental wing will be completed by 1961 when the first class enters in September. The hospital is scheduled for completion by 1962, in time for the first class to begin clinical work.

Louisville

A full-scale department of physical medicine is to be operated by the University of Louisville School of Medicine under a new agreement between the university and the Rehabilitation Center. In announcing the plan, Dr. PHILIP DAVIDSON, U. of L. President said that it will make the department "an effective teaching and research service of the university." In the past the Rehabilitation Center, which has quarters at General Hospital, has employed a medical director who was also chairman of the department of physical medicine and rehabilitation. Under the new arrangement, the university will hire both a full-time chairman of faculty rank for the department of physical medicine and a full-time medical director for the center.

Marquette

Dr. ADOLF L. KAPPUS, professor and chairman of the department of microbiology and immunology, has been appointed a consultant for the International Cooperation Administration in El Salvador. He will assume his duties with the U.S. Operation Mission at San Salvador, the capitol, on Oct. 1, where he will be engaged as an advisor to the University of El Salvador Medical School and the Ministry of Health and Social Assistance.

Dr. BEN I. HELLER, formerly with the department of medicine at the University of Arkansas and the Veterans Hospital at Little Rock, has been appointed professor of medicine at the Marquette Medical School and chief of medical service at the Veterans Administration Hospital, Wood Station, Wisc. Dr. Heller has also held teaching positions at the Minnesota Medical School and Northwestern Medical School.

A grant of \$111,000 from the American Cancer Society has enabled the university to create a position for the academic lifetime of an investigator. The award, made to Dr. MICHAEL LASKOWSKI, professor of biochemistry, is the first of its kind at Marquette and if it runs a full lifetime term, will amount to approximately \$186,000. The Marquette medical staff member will be known as the Grace M. Schwarten American Cancer Society Professor of Biochemistry.

Maryland

Dr. RUSSELL R. MONROE, former associate professor of psychiatry at Tulane University School of Medicine, has been appointed professor of psychiatry at the Psychiatric Institute of the University of Maryland School of Medicine. Dr. Monroe will be charged with the responsibility for the three-year residency program for physicians which leads to certification as a specialist by the American Board of Psychiatry.

Dr. RICHARD DAVISON RICHARDS has been named professor of ophthalmology and head of the department. According to university officials, departmental activities will be greatly expanded under his direction. Residency training has already begun, a vigorous research program is planned, and medical education for students will continue to be improved.

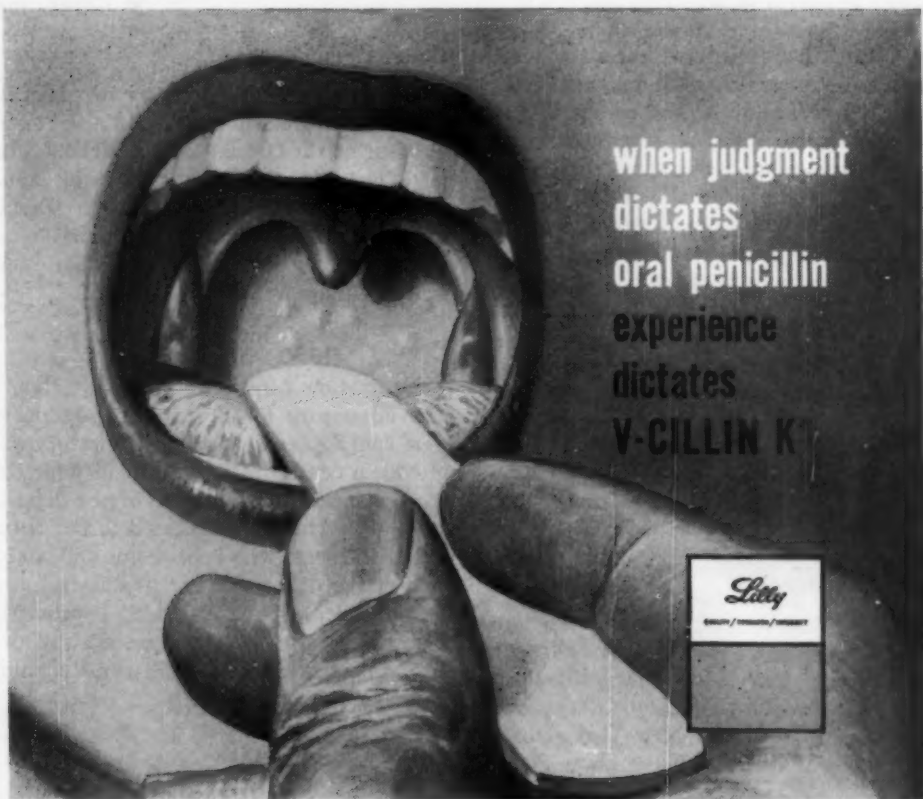
Dr. Richards comes to Maryland from the University of Iowa where he has been assistant professor of ophthalmology for the past two years.

Mayo

Dr. LAWRENCE M. RANDALL, chairman of the sections of obstetrics and gynecology of the Mayo Clinic and professor of obstetrics and gynecology in the Mayo Foundation, Graduate School, University of Minnesota, retired from active practice on October 1, after 34 years of service.

Michigan

Plans to construct a \$1,750,000 facility for research on hearing were disclosed recently at the University of Michigan Medi-



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1. Griffith, R. S.: Comparison of Antibiotic Activity in Sera Following the Administration of Three Different Penicillins, *Antibiotic Med. & Clin. Therapy*, 7:No. 2 (February), 1960.

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cal Center. The facility will be started with an initial grant of \$200,000 from the Kresge Foundation of Detroit. To be known as the Kresge Hearing Research Institute, it is expected to be completed in the academic year 1962-63. The Institute will permit the university "to mount a broad interdisciplinary attack on our present state of ignorance of the basic mechanisms of normal hearing and deafness," said Dr. WILLIAM N. HUBBARD, JR., Dean of the Medical School.

At least seven departments of the medical school intend to expand their research activities into hearing problems once the Institute is established. They are: anatomy/embryology, internal medicine, human genetics, neurology, otolaryngology, pathology, and physiology.

New York Medical

Dr. ALFRED M. FREEDMAN has been appointed professor and chairman of the department of psychiatry. Dr. Freedman comes to New York Medical College from the State University of New York, Downstate Medical Center, where he was associate professor of psychiatry. He will assume his new post at the end of the academic year.

New York University

Dr. HOWARD A. RUSK became the first doctor to be honored with the Hundred Year Association's annual Gold Medal award. The association is composed of businesses and organizations in New York that are more than a century old.

Dr. Rusk, professor and chairman of the school's department of physical medicine and rehabilitation, was cited for his work as "educator, author, editor and world leader in the field of medical rehabilitation."

Northwestern

Dr. JOSEPH A. WELLS has been named head of the pharmacology department. A graduate of the Northwestern Medical School, Dr. Wells started his teaching career there in 1938 as an assistant in the pharmacology department, later becoming an instructor and assistant professor.

Oregon

Construction is under way on the new \$2.5 million Medical Research Laboratories building on the Oregon Medical School campus. The nine-story structure will house basic science and clinical research laboratories, specialized facilities for animal housing, instrument shops, and a radioisotope center. Occupancy is slated for 1962.

Pennsylvania

Dedication ceremonies for the school's new laboratory for research in psychiatry were held September 30. The laboratory will provide a central integrated facility for the growing research enterprises of the department of psychiatry. Dedicated to Dr. KENNETH E. APPEL, who is professor and chairman of the department of psychiatry, and past-president of the American Psychiatric Association, the new facilities occupy the second floor of the George Piersol Rehabilitation Center.

S.U.N.Y. Downstate

Two new department chairmen were named recently to the faculty of the Downstate Medical Center. Dr. LUDWIG W. EICHNA, formerly professor of medicine at New York University College of Medicine, has been named professor and chairman of the department of medicine and Dr. I. CHARLES KAUFMAN, formerly associate professor of psychiatry at Boston University School of Medicine, has been named professor and chairman of the department of psychiatry.

Dr. Eichna succeeds Dr. PERRIN H. LONG, who has retired from the chairmanship but who will remain on the faculty as professor of medicine. Dr. Kaufman succeeds Dr. HOWARD W. POTTER, who retired as professor and chairman in 1957, and whose post has been filled for the past three years by Dr. DAVID ENGELHARDT, associate professor of psychiatry, as acting chairman. Dr. Engelhardt will remain on the faculty as associate professor of psychiatry. Dr. Eichna has also been named chief of the medical

service and Dr. Kaufman, chief of psychiatric service at Kings County Hospital, where a major part of the Downstate Medical Center's teaching program is conducted.

New appointments to the faculty include: Dr. MORRIS KLEINFELD, clinical associate professor of medicine; Dr. RUDOLF SINGER, clinical assistant professor of otolaryngology; Dr. JEROME SILVERMAN, clinical assistant professor of psychiatry; Dr. ARNOLD FENTON, clinical assistant professor of obstetrics and gynecology; and Dr. PATRICIA HEELY, lecturer in environmental medicine and community health.

S.U.N.Y. Upstate

Dr. W. W. WESTERFELD, professor and chairman of the department of biochemistry, has been appointed Associate Dean in charge of the Graduate School at the Upstate Medical Center.

Dr. CARLYLE JACOBSEN, president of the Upstate Medical Center and Dean, College of Medicine, has been granted a leave of absence to undertake a month's study of medical education abroad for the International Cooperation Administration. The study will be carried on principally at the University of Shiraz in Iran and will also involve conferences at the five other medical schools in Iran. Dr. Westerfeld will be acting administrative officer during Dr. Jacobsen's absence.

Tennessee

Another faculty member of a U.S. medical school will spend a year in Iran where he will teach at the University of Shiraz. Dr. E. FOSTER WILLIAMS, associate professor of chemistry of the University of Tennessee Medical Units, departed Oct. 1, for Iran where he will lecture on biochemistry to first-year medical students at the Shiraz Medical School. His appointment came under a Fulbright grant administered by the State Department.

Dr. JOHN W. RUNYAN, former associate professor of medicine at Albany Medical College, has joined the Tennessee Medical School faculty as associate professor of

medicine and director of endocrinology and diabetes. According to university officials, he will also reorganize the resident staff teaching program in the outpatient clinics of the University-affiliated hospitals.

Texas Medical Branch (Galveston)

Dr. DONALD DUNCAN, professor and chairman of the department of anatomy, has been appointed to the Anatomical Science Training Committee of the National Institutes of Health. As a member of the committee, Dr. Duncan will serve a three-year term. His function will be to review applications for training grants in the field of anatomical sciences.

Texas Southwestern (Dallas)

A 10-year development program that includes new buildings costing \$5.4 million, improved teaching quality, and stepped-up research is the goal of the University of Texas Southwestern Medical School. Additions to the physical plant would include a major research laboratories building, a radiation laboratory, a library unit, an auditorium center, and animal sciences building and a student services center. Professorial pay scale at Southwestern would be hiked to allow it to compete with the world's top institutions for scientific education leaders, along with increased support for faculty research, said university officials. With the pay and research goals achieved, said Dr. A. J. GILL, Dean, "we should be able to hold and to recruit a faculty that will be the equal of that at any school in the country."

Virginia

Dr. GEORGE R. PROUT Jr., formerly of the University of Miami School of Medicine, has assumed his new duties as chairman of the division of urology and associate professor at the Medical College of Virginia. He succeeds Dr. AUSTIN I. DODSON Sr., who was killed last year. Dr. Prout was at the Miami medical school since 1957, where he held the same position he now holds at Virginia. He also was chairman of urology at Jackson Memorial Hospital in Miami and

consultant in urology at the VA Hospital at Coral Gables and at Mt. Sinai Hospital, Miami Beach.

U. of Washington

The training program for anesthesiology was recently given departmental status and named first executive officer of the department is Dr. JOHN J. BONICA. Dr. Bonica has been director of anesthesiology at Tacoma General Hospital and Mountain View Hospital for the past 13 years.

Dr. J. THOMAS GRAYSTON, has been named professor of public health and preventive medicine, and executive officer of the department. Dr. Grayston has headed a U.S. Navy medical research unit in Taipei, Formosa for the past three years. During that period he was on leave from a position as assistant professor of preventive medicine at the University of Chicago School of Medicine.

Western Reserve

To meet a growing need for aid among medical students, a Cleveland department

store has set up a fund of \$100,000 at Western Reserve's School of Medicine to help deserving medical students with loans and scholarships. The loans will be made on a long-term basis with repayment not required until the student completes his medical training. No interest will be charged until repayment begins.

Woman's Medical College

Dr. H. WILLIAM HARRIS has been named professor and chairman of the department of medicine. Since 1955, he has been associate professor of medicine and head of the pulmonary disease division at the University of Utah College of Medicine, and chief of the pulmonary disease service of the Veteran's Administration Hospital in that city. Active in many professional groups, he is presently chairman of the committee on diagnostic standards in nontuberculous respiratory diseases of the American Thoracic Society, and is councilor at large of the Society.

TIEMS OF CURRENT INTEREST

NIH Earmarks About \$15 Million for Institutional Grants

Schools of medicine, dentistry, public health, and osteopathy will be able to spend their share of funds allocated by the National Institutes of Health "in any way they see fit" to strengthen their medical research programs. Approximately \$15 million for the fiscal year 1961 has been earmarked for institutional grants. Size of the individual grants will depend upon three factors: Four-year medical schools will each receive basic payments of approximately \$36,000. Two-year medical schools and schools of dentistry, public health, and osteopathy will receive basic payments of about \$18,000; every school will receive an additional sum based on a percentage of the federal grant

money it received the previous year for medical and biological research and training; and every school will receive another sum which will be based on a percentage of the non-federal grants and contracts it received the previous year for medical and biological training and research. The NIH program is designed to encourage schools to seek more non-government research support.

Still in the planning stage is a new \$2 million research professorship program by NIH administrators, which will provide stipends of approximately \$20,000 to about 100 investigators. Candidates will have to be conducting research, but will not necessarily have to be engaged in teaching. Recipients will also be eligible for regular NIH research grants.

W.H.O. Fellowships Available

At the request of the U.S. Government, the World Health Organization will provide to United States citizens in 1961, a limited number of short-term fellowships for the "improvement and expansion of health services." All applications will be submitted to a World Health Organization Fellowship Selection Committee established in 1959 by Surgeon General Leroy E. Burney.

Applications will be considered in public health and allied fields. Applicants must be engaged in full-time public health or educational work. Officers and employees of the United States Government are not eligible. Further information may be obtained by writing to Dr. Howard M. Kline, Secretary, World Health Organization Fellowships Selection Committee, Public Health Service, Washington 25, D.C.

Research Institutions Can Apply to National Cancer Institute for Funds

The National Cancer Institute will accept applications filed by January 15, 1961 from research institutions for funds to pay the cost of construction of facilities for research on cancer. Grantees will not be required to match the awards, but their ability to supplement them will be considered in reviewing applications. A total of \$5 million from the Institute's 1961 appropriation is available for non-matching research facilities constructions grants. The program is authorized for one year only. Requests for informations on the procedure for filing applications

should be addressed to Dr. Ralph G. Meader, Associate Director for Grants and Training, National Cancer Institute, Bethesda 14, Md.

American Goiter Assn. Again Offering Prize

The Van Meter Prize Award of \$300.00 is once again being offered by the American Goiter Association, Inc. The prize, going to the essayist submitting the best manuscript of original and unpublished work concerning "goiter—especially its basic cause," will be made at the Association's annual meeting in Philadelphia, Pa., May 3-6, 1961. The studies so submitted may relate to any aspect of the thyroid gland in all of its functions in health and disease. For further information, write to Dr. John C. McClintock, 702 Madison Ave., Albany 8, N.Y.

VA Names New Director of Medical Education Service

Appointment of Dr. Robert I. McClaughry of the National Academy of Sciences-National Research Council as director of medical education service for the Veterans Administration was announced recently.

A former assistant dean of Wayne University's College of Medicine, Dr. McClaughry has been associated in a professional capacity with the Division of Medical Sciences since 1958. In his new post, McClaughry will coordinate programs making a major contribution to the trained medical manpower pool of the nation.

PERSONNEL EXCHANGE

Faculty Vacancies

ANATOMIST: Assistant professor required for teaching gross anatomy. Excellent research opportunities in other branches of anatomy (electron-microscopy, histology, experimental pathology, tissue culture). Salary, \$7,300-\$8,500 depending on experience and qualifications. Write to R. Altschul, M.D., Department of Anatomy, University of Saskatchewan, Saskatoon, Canada.

ANATOMIST: Medical school in Midwest with excellent research facilities for neurophysiological studies. Teaching assignments in gross and neuroanatomy. Rank and salary dependent upon qualifications. Address: V-94.

MICROBIOLOGIST: The University of Alberta invites applications for the position of assistant professor in the department of medical bacteriology. Candidates should be medically qualified or possess a higher science degree. Experience in medical bacteriology or virology is useful but applicable experience in basic science fields may be as valuable. Teaching and research duties with variable amount of service responsibility depending on nature of appointment. Present salary range \$6,000-\$8,200. Applications and inquiries which should be accompanied by full curriculum vitae may be sent to the Dean, Faculty of Medicine, the University of Alberta, Edmonton, Alberta, Canada.

BIOCHEMIST: Ph.D., full-time investigation of fundamental aspects of peritonitis plus independent research. Joint academic appointment. Salary dependent upon professional experience. Department of Surgery, Louisiana State University School of Medicine, New Orleans 12, La.

ORTHOPEDIC SURGEON: Professor and head of department of orthopedics required. Full-time position with emphasis on developing research program in East Coast Medical School. Address: V-95.

PEDIATRICIAN: Full-time university appointment. For active teaching program of undergraduates and residents. Interest in teaching general pediatrics and child health; specialized interests also encouraged. Rank and salary commensurate with experience. Mail curriculum vitae to V-96.

PHARMACOLOGIST: Full-time appointment as assistant professor in department of pharmacology, Ph.D. or M.D. Salary, \$6,000 to \$8,500 according to qualifications. Interested candidates should send a complete curriculum vitae and recent photograph to Dr. M. F. Murnaghan, Professor and Head, Department of Pharmacology, University of Ottawa, Ottawa 2, Ontario, Canada.

PSYCHIATRIST: Full-time academic position as instructor or assistant professor in dynamic new department of psychiatry. Opportunities for teaching, research, and clinical experience on inpatient, outpatient, and/or consultation services. Departmental emphasis is on community psychiatry. Must have completed approved residency training. Rank and salary based on qualifications and ability. Write: Dr. James M. A. Weiss, Department of Psychiatry, University of Missouri School of Medicine, Columbia, Mo.

BIOCHEMIST: Qualified Ph.D. needed for department of pathology in Southwestern medical school. Position carries title of assistant professor with an annual salary of \$7,600. Work consists of directing clinical chemistry laboratory and setting up microtechniques in affiliated hospital. Also involves assistance in teaching clinical pathology to second-year medical students. Ample opportunity for research. Address: V-97.

INTERNSHIP: Full-time position available at university affiliated hospital for internist to run research-metabolic

unit, conduct own research, and help with teaching house staff and students. Address: V-98.

DIRECTOR OF PROFESSIONAL SERVICES: Large affiliated VA General Hospital. Certified specialist with more than casual experience in residencies and research and a flair for administration. Faculty appointment appropriate for qualifications. Active expanding research programs. Ambitious, mature personality. Salary \$15,789-\$17,200. Address: V-99.

PHYSIATRIST: Board certified, mature personality, Chief, Physical Medicine and Rehabilitation Service, large affiliated general VA Hospital, Southwest. Challenging residency and research programs. Qualified for professional appointment. Salary \$15,789 to \$17,200. Address: V-100.

PSYCHIATRIST-DIRECTOR: For new 39-bed adult inpatient service in 350-bed, medical school-affiliated, acute general hospital. Should be Diplomate or Board eligible. Planning resident training, research and service programs; dynamic orientation with psychotherapy as primary therapeutic approach. Excellent voluntary staff prepared to cooperate actively. Eligibility for Michigan licensure required. Position would be full-time; salary commensurate with candidate's qualifications. Write, including curriculum vitae, to Julien Priver, M.D., Director, Sinai Hospital of Detroit, 6767 W. Outer Drive, Detroit 35, Mich.

INTERNSHIP: Young, to serve full-time as assistant chief of service in university affiliated, all charity hospital recently opened. Faculty status. Salary \$10,000. Address inquiries to Dean, Louisiana State University School of Medicine, 1542 Tulane Avenue, New Orleans 12, La.

MEDICAL ARTIST: Full-time position for a formally-trained medical artist in a medical school serving all departments. Recent graduate preferred. Salary according to qualifications. Address: Professor J. V. Basmajian, Department of Anatomy, Queen's University, Kingston, Ontario, Canada.

NEUROANATOMIST-NEUROPHYSIOLOGIST: Research associate in neurology to work full time on research project. Teaching opportunities optional. Duration three years at salary of \$6000 plus, depending on experience and degrees. Write giving curriculum vitae to Dr. W. T. Niemer, Vice-Chairman, Department of Anatomy, The Creighton University School of Medicine, 302 N. 14th St., Omaha 2, Nebraska.

VIROLOGIST: To associate with studies on the epidemiology of virus diseases. Research and teaching position in medical school in mid-South. Opportunity for independent work. Ph.D. or M.D. Salary and rank according to qualifications. Address: V-101.

PSYCHIATRIST: On research ward, VA Hospital, Houston, Texas. Current research activity primarily focused on biochemical, physiological, and psychological aspects of schizophrenia. Numerous scientist collaborators, facilities available for pursuit of individual research problems. Hospital closely affiliated with Baylor University College of Medicine and Texas Medical Center. Salary up to \$17,200 depending on individual qualifications. Write Alex D. Pokorny, M.D., Chief, Psychiatry and Neurology Service, VA Hospital, Houston, Texas.

VIRUS RESEARCH: M.D. or Ph.D. interested in infectious diseases, basic studies on mechanisms of infection and on etiology, pathogenesis and epidemiology of virus diseases of infancy and childhood. Excellent facilities. Salary \$6,000 per annum. Address: V-102.

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

Personnel Available

HUMAN GENETICIST: Ph.D., age 36, seven years experience at leading human genetics center, including heredity clinic service, population surveys of hereditary traits, and statistical analyses. Fourteen publications. Desires permanent university position, preferably research and teaching. Address: A-431.

CERTIFIED INTERNIST: Age 38, experienced in diabetes, endocrinology, radioisotopes (licensed by AEC). Several years direction of medical residency training program, and radioisotope unit in large teaching hospital, and Assistant Professor of Medicine in charge of student diabetes clinics. Now in private practice. Desires return to full-time teaching hospital and/or medical school. Address: A-433.

PHYSIOLOGIST-BIOCHEMIST: Ph.D. Faculty member medical school. Interdisciplinary major grant research program (3 technicians) in basic and clinical aspects of endocrine physiology, metabolism, biochemistry. Publications, societies, radioisotope experience, training in statistical design. References. Desires faculty career appointment teaching physiology and/or biochemistry with facilities and climate to develop research program. Address: A-435.

INTERNIST: M.D., age 35. Currently on faculty of Eastern medical school. Experience in private practice and industrial medicine. Eight months experience and training in psychiatry. Desires faculty appointment with opportunity for clinical investigation in cardiovascular diseases, as well as teaching general medicine in teaching hospital. Address: A-436.

PHYSIOLOGIST: Ph.D., leading university. Well trained in biological, physical and chemical sciences. Highest scholastic honors, scholarships, former National Research Council Fellow. Well developed research program on the physiology of growth and aging. Offices held in national scientific societies. Present appointment, associate professor in medical college. Currently in charge of teaching. Seeking appointment with major administrative-teaching responsibilities, with opportunity to continue expanding research study, preferably in the West. Minimum entering salary \$12,000. Available Fall, 1960. Address: A-438.

PEDIATRICIAN: Professor and department head. Wishes to relocate for personal reasons. Ten years at present post. Age 43. Numerous publications. Would first consider university or educational foundation position; then, hospital educational program or industry affiliation. Address: A-439.

SURGEON: Cardiovascular and thoracic. M.D. 1947 American medical school. Presently located at Canadian hospital as research fellow in cardiovascular surgery. Desires position in thoracic and cardiovascular surgery, either at clinical level, or in teaching and research. Diplomate, American Board of Surgery. Address: A-440.

HISTOLOGIST-ENDOCRINOLOGIST: Also histochemist-electron microscopist. Age 32; Ph.D., Harvard. Publications, grants and cancer research. Six years teaching experience in histology, embryology and histochemistry. Desires associate professorship or full time research position in a medical school in department of anatomy, biochemistry, pathology or allied clinical science. Address: A-441.

PHYSIOLOGIST-PHARMACOLOGIST: Ph.D., 1954. Male, family. Eleven years teaching experience, currently teaching physiology in dental school. Desires academic position with or without research opportunities. Address: A-444.

ANATOMIST: M.B.B.S., University of Karachi, 1955. Four years teaching experience. Currently with anatomy department in a Pakistan medical school. Desires anatomy instructorship in medical school or university, preferably in northern United States, and opportunity to do summer graduate work. Address: A-445.

INTERNIST: Age 33; certified in medicine. Trained in clinical medicine, teaching and research at university hospital and the N.I.H. Director of medical education at university affiliated hospital in New York City for past three and one-half years. Experience in private practice and epidemiology. Desires geographic full-time position at medical school or hospital, with opportunities for teaching and research as well as consultation and limited practice privileges. Address: A-446.

PREVENTIVE MEDICINE PHYSICIAN: M.D., M.P.H. and Dr. P.H. Desires teaching position on medical school faculty. Numerous publications. Previous teaching and health department experience. Special interests are epidemiology, biostatistics, and preventive medicine. Address: A-447.

BACTERIOLOGIST-IMMUNOLOGIST: Ph.D. Married, family. Eleven years experience in clinical bacteriology, serology, and blood grouping and as Director of the blood bank. Extensive teaching experience at medical school level. Publications. Desires hospital position with research potential and university faculty status. Address: A-449.

PHYSICIAN: M.Sc., M.D., age 38, presently on staff of Australian university, desires teaching position in department of medicine at American university. Trained in England and United States. Numerous publications; broad background. Speciality, cardio-vascular diseases. Address: A-450.

PEDIATRICIAN-PUBLIC HEALTH: M.D., M.P.H., Past experience includes private clinical practice, teaching preventive medicine and school health. Fellow, American Academy of Pediatrics. Desires part-time position in public or student health with academic affiliation. Address: A-451.

ADMINISTRATOR: M.D., age 36. Five and one-half years in administration of large federal medical education program and government medical research contracts.

Graduate training in clinical pathology. Desires administrative post in medical school, preferably with opportunity for teaching and research. Address: A-452.

EDUCATIONAL DIRECTOR: Surgeon, with seven years' university and administrative experience as assistant professor and director of a large multi-service residency program in a Veterans Administration hospital. Position sought in a university or community hospital, full or part-time, with access to research facilities. Address: A-453.

PATHOLOGIST: Federal pathologist desires chairmanship of department or professorship of anatomic pathology in a university medical school or affiliated civilian general hospital. Currently conducting research which would continue; contributor to medical texts and journals. Availability of space, facilities, full-time personnel and opportunity to teach medical students and train residents deciding factors in accepting a position. Address: A-454.

PHYSIOLOGIST-PHARMACOLOGIST: M.S., Ph.D., age 32, married, 2 children. Nine years training and research experience in physiology and pharmacology, with specialization in cardiac electrophysiology and pharmacology. Former National Heart Institute and American Heart Association research fellow. Desires academic, hospital, or affiliated research institute research appointment with opportunity to initiate and organize own research program in cardiovascular pharmacology and physiology. West Coast location desired. Address: A-455.

INTERNIST: M.D., age 40. Experienced in teaching, clinical investigation (metabolism), patient care, and administration. Desires full-time post with teaching hospital—medical school. Address: A-456.

EXFOLIATIVE CYTOLOGIST: M.D., with 12 years' training. University experience in teaching and research (cyto-histochemistry). Desires appointment in a university department or in cancer institute with exfoliative cytology program and opportunities for research. Address: A-457.

PHARMACOLOGIST: M.D., Ph.D., age 36, married. Seven years teaching and research experience in structure-activity-relationships. Desires academic position with facilities and atmosphere conducive to develop research program. Address: A-458.

GENERAL SURGEON: M.D., F.R.C.S.(C). Board eligible. Excellent references. Age 35. Teaching experience in anatomy, pathology and surgery. Desires association with hospital, medical school, or group with part-time teaching responsibilities. Address: A-459.

PATHOLOGIST: Age 36. Certified in clinical and anatomical pathology, presently on medical school faculty. Desires to combine service with teaching or hospital educational program. Address: A-460.

PHYSIOLOGIST: Ph.D., male, age 31, 1958 graduate with teaching experience in medical schools. Interested in academic position in medical school with research opportunities. Present rank, Assistant Professor. Currently on NIH research grant. Available fall 1961 (possibly spring 1961). Address: A-461.

INTERNIST: F.A.C.P., age 43. Consulting physician in large Eastern charity hospital desires full-time position in department of medicine at Professor of Clinical Medicine level. Primarily interested in metabolism but will consider other sections. Broad training in most subspecialties; basic experience with isotopes. Extensive clinical investigation. Numerous publications since 1947. Diplomate American Board Internal Medicine. Address: A-462.

PHYSIOLOGIST-BIOCHEMIST: Ph.D., faculty member Medical School. Experienced with isotopic and biochemical techniques applied to basic problems in endocrinology, metabolism, and cellular physiology. Publications and societies. Teaching experience. Desires career faculty appointment in physiology or biochemistry with opportunity for independent research. Address: A-463.

PHYSIOLOGIST: M.D., age 35, male, family. Currently in charge of course as associate professor of physiology in Latin American medical school. Approximately 5 years experience in pathology and research laboratories in U.S. Desires teaching position in physiology at U.S. Medical School. Address: A-464.

GENERAL and THORACIC SURGEON: Certified both Boards and eight years training including research fellowships. Experience includes cardiac surgery. Desires academic position with opportunity for research; minimal clinic load to remain familiar with problems in applied surgery. Administrative responsibilities easily accepted. Address: A-465.

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1. Macy, I. G.; Kelly, H. J., and Sloan, R. E.; with the Consultation of the Committee on Maternal and Child Feeding of the Food and Nutrition Board, National Research Council: The Composition of Milks, Publication 234, National Academy of Sciences and National Research Council, Revised 1953. 2. Brown, G. W.; Tuholski, J. M.; Sauer, L. W.; Minsk, L. D., and Rosenstern, I.: Evaluation of Prepared Milks in Infant Nutrition; Use of the Latin Square Technique, J. Pediatr. 56:391 (Mar.) 1960.



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